35¢

Contents for June - July 1960

The Flail Type Field Chopper	Le Journal de la France Agricola	1
Tiny Mite May Control Flies*	University of Wyoming	6
Why Condition Your Hay?	New Holland Grassland News	7
Is Water Farming's Weakest Link?	Farm and Ranch	9
Trend of Land Prices*	Farm Facts	10
Wettable Powder in Weed Sprayers	American Agriculturist	11
Egg Room Light Helps Quality*	West Virginia University	13
Chimney Smoke	Irene Rudie	14
Cool Hogs Mean More Profits	Pennsylvania Farmer	15
The Beef-Type Steer Is Coming Soon	Breeder's Gazette	17
New Light on Plant Disease Resistance*	North Carolina State College	19
Supplemental Feeding of the High Producing Cow	Feed Age	20
Poultry Pests Thrive on Sun	Farmer and Stock-Breeder	25
Managing Your Farm Machinery	Nation's Agriculture	28
Ewe Management on a Calender Schedule	The Dakota Farmer	35
Feeding Our Hogs	The Duroc News	37
A Cow "Machine"*	The Progressive Farmer	40
Fun On The Farm	Collected	41
Piperazine Citrate Effects Egg Yolks*	Virginia Polytechnic Institute	44
Ten Points for Dairy Profits	Butter-Fat	45
The Use of Feed Additives	Texas Agricultural Progress	47
A War Never Fought*	Tree Trails	50
What's Your Son Going To Do?	Iowa Farm Science	51
The Changing Livestock Farmer	Implement & Tractor	58
Oats: Should They Be Grain or Silage?	Nebraska Station Quarterly	65
When You Should Irrigate	Wyoming Stockman-Farmer	69
A Thought A Day	Everett Smith	73
Care and Development of Calves	Polled Hereford World	75
42 Tips to Keep Livestock Healthy and Gaining	The Farmer	79
Big Strides in Insecticides	The National Future Farmer	84
Herd Improvement Through Foundation Cows	Western Dairy Journal	86
Compaction: A No. 1 Soil Problem	Capper's Farmer	89

*Short Features in this Issue. One Year Continuing Index, **pages 93 & 94**

PASTURE IS NOT A PERFECT FEED

Although pasture grass in June may appear to be an almost perfect feed for dairy cattle, it doesn't have as much feeding value as you think. Actually, for every 100 pounds of this lush grass eaten by a dairy cow, only 15 to 20 per cent is dry matter. Thus, a cow or heifer must "eat" 80 to 85 pounds of water to get 15 to 20 pounds of actual dry matter.

Mature cows may have sufficient capacity to eat enough grass to meet most of their nutritional requirements, but heifers and calves can't be expected to do so. So it is important to supplement lush grass with plenty of dry hay and grain. Calves under 10 months of age should be fed only limited amounts of pasture grass along with plenty of good hay and some grain.

Heifers past 12 months of age can be fed all the grass they will eat, provided they also have all of the good hay they want. Keep the hay rack filled with fresh hay at all times. Heifers should also be fed enough grain to maintain thrifty condition and steady growth. Heifers on good pasture, with good-quality hay available, seldom need any grain. However, if pasture and hay are of poor quality, the animals may require as much as 6 pounds of grain per day to maintain normal growth.

W. L. Northern, Extension Dairyman at West Virginia University

THE FARMER'S DIGEST

Route 2 **FORT ATKINSON, WIS.**

Editor and Publisher — Hugh Highsmith
Associate Editor — D. W. Scheid
Livestock Editor — Al Haller
Office Manager — D. W. Wittenwyler
Subscription Service — E. M. Hartwig, V. M. Binkert
Industry Sales — Raymond C. Groendyke

Published monthly, except June-July and August-September, when published bi-monthly at Fort Atkinson, Wisconsin by The Highsmith Co. Inc.

Subscriptions in U. S., U. S. Possessions and Canada: One year $3.00, two years $5.50, three years $7.75.

Subscriptions to Other Countries: One year $3.50, two years $6.50, three years $9.25.

ADVISORY EDITORIAL STAFF
William A. Albrecht, Chairman
Department of Soils, U. of Mo.
Hugh H. Bennett, Ex-Officio, Soil Conservation Society of America
G. B. Gunlogson, Agricultural Engineer
H. J. Reed, Dean of the School of Agriculture, Purdue University
T. J. Rutherford, Chairman, Canadian Farm Credit Corporation
W. T. Spanton, Chief of United States Ag. Education Service

POSTMASTER: Send notice on POD Form 3579 to Farmer's Digest, Route 2, Fort Atkinson, Wis. Entered as second-class matter at the Post Office at Ambler, Pa., July 30, 1948, re-entered at Fort Atkinson, Wis., additional entry at Jefferson, Wis. under the act of March 3, 1879. Printed at Jefferson, Wis.

IMPORTANT!

Farmer's Digest Summer Publishing Dates

During the summer months, Farmer's Digest is mailed to you every 45 to 50 days instead of monthly. This practice, started years ago, keeps our subscription rates down by giving you fewer copies when you have less time to read. You will receive our August-September issue on or about August 15. Following issues will again arrive near the first of the publication month.

The Publisher

The Farmer's Digest

Volume 24 June-July, 1960 Number 2

A French Farmer Reports On His — Flail Type Field Chopper

If you think France a long way away and a Frenchman's experiences of little interest to you, read this article.

by *Raymond Larthe* in the April 21, 1960 issue of "Le Journal de la France Agricole"

Translated by *Herbert Steiner.*

The Farm Chosen:

FRENCH farmer, Mr. Chatelin, farms 330 acres of flinty clay soil, all of it gently sloping, but with many pieces of flint up to eight pounds in weight. His main enterprise is a herd of thirty milk cows. Formerly he filled two silos with beet pulp from a nearby distillery, but since the closing of the distillery he has switched to grass and corn silage. Mr. Chatelin bought his flail type forage harvester (similar to those offered in this country) in the summer of 1958, so that at the time of our interview he was in the midst of his second season of use.

I. The Opinion of the Owner:

Mr. Chatelin, why did you buy your chopper?

"I bought my chopper to continue ensiling my corn after my binder had been broken up piece by piece in doing this job. I need a minimum of 150 tons of silage, and I could think of only one mechanical solution to this problem. In 1958 the growth of the corn was so heavy that it would have been impossible to get the job done with a binder. Moreover the conventional type choppers would not fit, because my corn rows were too close together. I was also attracted by the lower price of the flail type chopper

Reprinted by permission from
Journal de la France Agricole, 9 Rue des Petites Ecuries, Paris, France

and its simplicity of design."

What jobs have you done with your chopper since its purchase?

"In 1958 I started by harvesting 250 tons of corn silage. This corn sown in rows 28 inches apart, and using about a bushel of seed per acre, averaged 10 feet in height. The ears were in an advanced doughy stage due to the delay in the delivery of the chopper, but in spite of this it worked well.

"Later during the winter I used it daily to harvest forage cabbage. I found this type of mechanical harvesting, with only one man much simpler than gathering by hand, in spite of some loss of juice. I also pulverized the stalks of the corn which had been picked for grain.

"In the spring I green-chopped six acres of alfalfa and fed it daily with the help of only one man. I also pulverized twenty acres of brambles. Without this pulverization my plow would have been forced out of the ground continuously. I also cleared an old road which had become grown over with brush.

"Finally after the 1959 harvest I worked over the swathes of straw left by the combine. If I had not done this it would have been very difficult to plow up the stubble ground. I also used the chopper in the summer of 1959 to make corn silage, but my yield was only half that of 1958, due to the dry weather."

The manufacturer claims that the chopper can also be used as a rotary tiller. In your opinion is this possible?

"No. Perhaps on plowed ground already in very fine condition, which would have no justification."

You have a chopper with a 50-inch cut. How much power do you use to run it?

"My chopper is pulled by a 34 horsepower tractor. My particular setup requires that the wagons for hauling the silage be pulled *not* by the tractor pulling the chopper, but by a second light tractor of 24 horsepower running alongside the chopper. A 15 horsepower tractor suffices for this job if I don't load the wagons with more than 3500 pounds. For harvesting corn silage the 34 horsepower tractor can just barely do the job, but in alfalfa there is plenty of power to spare."

People will believe anything you tell them, if you whisper it.

How fast do you travel?

"In heavy harvest (twenty tons to the acre) I move at 1½ miles per hour; under lighter conditions, at 2 miles per hour."

What is your hourly performance?

"I put in 4 acres of twenty ton silage in an 8 hour day. This means 10 tons per hour with a crew of three men with three tractors—one man running the tractor and chopper, and the other two each going back and forth with tractor and wagon."

Have you ever harvested more than 10 tons per hour?

No. For alfalfa our speed is faster, but the weight of the harvest per acre is less; the two figures are directly connected."

Your figure of 10 ton per hour with a well-organized setup agrees with the results obtained in England with similar machines. What do you think of the quality of the work obtained?

"It has been said that the flail type chopper working like mine, not offset and following in the wake of the tractor, crushes and wastes a part of the harvest. This is true. But that which the inside wheels of the tractor and chopper crush, is salvaged by the knives of the rotor. In my opinion it is useless to take the next swathe in the opposite direction from the last one. I turn squarely around the field and start without turning aside. I'm satisfied with the results."

The government recovers about 85 cents of each dollar extended to farmers through commodity loans.

Have you any criticisms of this chopper?

"Let's begin at the beginning. The first days of use were disastrous. I harvested 70 pieces of knives without counting those buried in the ground. Those first knives were like marshmallow paste. My blacksmith saved me by cutting temporary knives from some old truck springs. I broke only a few of these. After several letters and telephone calls the manufacturer promised free replacement of the knives. The new knives were imported from Germany. The manufacturer added that he would attach the new knives to the axle with different materials, but I thought that this was not worth $20 for a mere steel plate, three links, and two bolts, especially since the old ones seemed to work.

"I therefore put the German knives on the original attachments, and these have held until the present. Out of 24 knives I have twisted and untwisted three, and broken the corner of a fourth.

"Further, I had some trouble with the lever regulating the direction of the spout. This lever reached all the way to the seat of the tractor. The idea was to make it possible for the operator to regulate the direction of throw

of the spout without getting off the tractor seat. However, the results were unfortunate. This long rod broke my rear light, and always got in the way. Moreover it does not serve its purpose of keeping the operator from getting off his seat to adjust the direction of the spout, because it remains in position only if the operator tightens the holding screw with both hands. To do this he must get off the seat.

"In the third place, I have lost some harvest due to the effect of the wind between the spout and the wagon. The original spout was not well enough designed. They now make an improved design which solves the problem."

Have you had any trouble with the wagons?

"Yes, I damaged a tire of the chopper because it got too close to the wagon. The driver of the wagon has to be very careful not to get too close to the chopper. On the other hand if he gets too far away, too much is lost."

Have you any remarks on the dangers of the chopper with its knives rotating at 2000 r.p.m.?

"Contrary to what one would imagine, the propulsion of stones is not to be feared from the rear, since everything (stones and harvest) is brought to the front because of the direction of rotation of the knives. There is some throwing of stones to the front, and this increases in importance as one raises the front of the chopper. This stone-throwing also increases when you decrease the clearance between the knives and the counter-blade. Last year the manufacturer recommended this for harvesting the heavy corn, but I had to change back because of too much stone throwing.

"Last year, to safeguard my knives from the stones I raised the chopper higher off the ground to give more clearance room. Actually I have since then had very few stones coming out the front. There are also the stones which go up the spout and into the wagon with the harvest. For this reason I no longer have a man in the wagon spreading out the load. I put a little less on the wagons as a result."

Oil spraying can help keep eggs fresher.

What maintenance do you give your chopper?

"I want to say first that the manufacturer included no instructions whatsoever on maintenance, and I had to work everything out on my own. So much the worse for me if I did not notice some hidden grease fitting. One grease fitting is so situated

that it is necessary to remove a cotter pin every time you want to grease it. This is not much work, but it is a bad feature, because when you are in a hurry you are inclined to skip it."

II. The Characteristics of the Chopper:

Under a hood supported by two wheels and surmounted by a long spout, there is an axle around which rotate four sets of six knives per set (This is the chopper with the 50-inch cut.) These knives are spaced about six inches apart in a row. Each knife is attached to the rotor axle by two links in such a way that it is necessary to remove a cotter pin every time you want to grease it. This is not much work, but it is a bad feature, because when you are in a hurry you are inclined to skip it."

The size of the disposal field needed for a septic tank depends on its location, type of soil, and kind of household equipment.

that the free distance from the rotor to the tip of the knife is four and a half inches. This assembly does the following:

1. Cuts the crop.
2. Slices and macerates the stems.
3.. Acts as a blower in blowing the material up the spout.

The cut and macerated material is blown up the long spout, which can be adjusted to direct the flow. When the spout is dismantled, the chopper can be used to chop straw, stalks, and other materials which are to be left in the field. An extension can be put on the spout so that the material chopped is deposited back on the ground as a windrow. This can be used for chopping and windrowing hay.

The machine runs on two wheels which can be placed in two different positions. In one position the wheels are in line with the axis of the rotor. In this position the effects of irregularities in the terrain are diminished, and the coupling can be accomplished by one man, because the machine is balanced on its wheels. In the second position the wheels are placed back so that more of the weight of the chopper rests on the tractor drawbar.

The adjustable extremity of the spout turns up to 90 degrees in a circle whose circumference is approximately 39 inches.

III. Conclusions:

The flail-type chopper is a versatile machine for harvesting all kinds of forage, including corn. It can also be used for chopping all kinds of vegetation up to an inch in diameter. To function best the knives should not touch the ground or too much dust and too many stones would be thrown.

Costs in France of Harvesting with the Flail-Type Chopper

(According to figures of Mr. Chatelin, based on an exchange

rate of 5 francs to the dollar.)

Three diesel tractors at 80 cents per hour $2.40
Three men at 40 cents per hour 1.20
Two wagons at 10 cents per hour ..... .20

Total out of pocket cost per hour $3.80

Purchase price of chopper $1500 amortized at 500 hours .....$3.00 per hour

Maintenance: one knife for every 2.5 acres and greasing .12 per hour

Total cost of harvesting ..$6.92 per hour

Tiny Mite May Offer New Approach to Fly Control

A mite small enough to hide under the head of a pin is the central figure in a $5000 Wyoming University research project that could mean a new concept in fly control.

The little mite — native to some parts of the East — feeds on flies and fly eggs. Insect control researchers hope to "seed" mites in the fly's favorite breeding places and kill most flies before they mature to become a pest.

L. D. Haws, entomologist, has just received a $5192 U.S. Public Health Service grant to study the mite. He hopes to substitute a natural enemy for chemicals in fly control. Chemical insecticides sometimes leave dangerous residues, and strains of flies develop resistance to each insecticide almost as fast as researchers can find new chemicals.

Haws first discovered the predatory mites by accident. Breeding flies in manure samples at Cornell University, he noticed he wasn't getting many adult insects. Looking for the reason, he discovered mites living in the manure.

Researchers at Cornell and at Fort Sam Houston in Texas currently are working with the mites. In the University of Wyoming project, Haws plans to (1) study climatic needs of the mites to see if they will stand Wyoming's low temperatures and dry weather, (2) find how many mites it takes to control a certain number of flies, and (3) make surveys in the state to see if mites live naturally in Wyoming.

—University of Wyoming

Why Condition Your Hay?

You speed up haymaking and get better hay at the same time . . .

Condensed from New Holland Grassland News

"FARMERS are being robbed of a third of their hay—one of their most valuable crops," the newspaper story began. It went on to say:

"The loss is in feed value, due to leaf shattering and poor curing. The robbers are unpredictable weather and hay's peculiar way of drying."

A lot is being done these days to write off much of this loss—and give farmers better hay at the same time.

Tests in many states show, for example, that a hay conditioner cuts field curing time greatly. At Purdue University, the University of California and Wyoming Experiment Station they've shown that hay in the swath dries to 25% moisture up to twice as fast after it's been conditioned.

Michigan State University tests show this comparison:

When hay is field cured, 15 to 20 hours of sunshine are needed. Conditioning reduces this time to as little as 8 hours.

A hay crimper conditions the stems at intervals and a crusher conditions them their entire length to cause them to dry at about the same rate as the leaves. This gives the farmer a chance to get his hay in before sun or rain losses occur.

Besides reducing the weather hazard and speeding up haymaking, conditioning offers a number of other benefits:

1. Decreases the amount of field work. In most cases, field curing can be completed without having to ted or turn windrows.

2. Saves leaves and small stems. Since stems dry as fast as leaves, there's a minimum of shattering.

3. Preserves green color of hay. Shortening the time of exposure to the weather after cutting prevents bleaching and loss of carotene.

4. Preserves feed value. The

Reprinted by permission from New Holland Grassland News, New Holland, Pennsylvania

leaves contain 75% of the protein and calcium, 60% of the total digestible nutrients and most of the carotene. Saving the leaves and small stems means more nutrients are retained—and up to 10% more actual hay is harvested.

5. Increases palatability. Coarse, stiff stems are softened by conditioning. Not as much hay is refused by livestock. Even poor, weedy hay is made more palatable.

How rain can spoil hay is readily understood. But even in good weather, field-cured hay may lose up to 30% of its leaves and 28% of its protein, Minnesota researchers have found.

Tests show rained-on hay put up by conventional field-curing methods may lose up to half its feed value by the time it gets to the barn. And in some states, half the hay that's made without conditioning gets rained on.

The Minnesota scientists say the ideal way to put more feed in your barn from your hay crop is to use both a conditioner and a dryer.

"The conditioner speeds up field curing and the dryer makes it possible to put up hay at higher moisture content," they say.

In one test, a dryer increased net income by $550 a year for a farmer with a 30-cow herd.

Another farmer found:

"When I started feeding conditioned hay, I got 150 to 200 pounds more milk a day from my 28 cows than I did the previous season."

By reducing field work, conditioning also lets you take advantage of the best cutting time—especially if you put up a lot of hay.

The U. S. Department of Agriculture found that alfalfa cut at early bloom stage has about 1,106 pounds of digestible protein per acre. This compares with only 722 pounds per acre when cut at full bloom. To replace the 384-pound-per-acre loss caused by delayed cutting would take about 1,000 pounds of soybean meal. Or

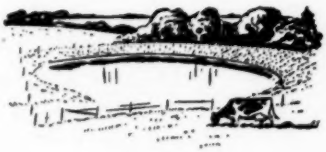
Hens don't lay dirty eggs.

at current prices, it would cost $30-$35 to replace the protein lost from each acre for three cuttings, the Department says.

In a Cornell study, cows that had been fed late-cut hay for 20 weeks dropped to an average milk production of 14 pounds per cow daily. At the end of 20 weeks, the cows that were in their sixth to seventh month of lactation were abruptly switched to all the early-cut hay they'd eat.

For five consecutive weeks, milk production per cow per day increased until each cow was giving an average of 27 pounds daily. And there was no increase in the rate of grain feeding.

Is Water Farming's Weakest Link?



How 'bout when our creeks run dry? . .

Condensed from Farm and Ranch

Bill Kennedy

WHAT'RE you gonna do when the well runs dry?

Farm-type scientists can keep on killing bugs as long as they keep coming. They can improve crop varieties by certain degrees. And they can keep upgrading soils—pouring out unlimited supplies of plant food for crops. But these things can increase yields only to the point where the water runs out.

No way has been found to increase nature's water supply or a way to stop the population and thriving industries from moving into rural areas to use water farmers once called their own.

Farmers have heard many wild exaggerations about "big trouble" when the population over-takes production. But they haven't bothered to worry much about water. They haven't had to.

Up to now, the biggest water problems have been the short-term droughts—which hurt crops on many light soils every summer—and the rain and flood waters that come down in other seasons.

Most farmers can still increase yields and profits in ways that pay off quicker than irrigation or conservation practices like ground water storage. (Use of more and better fertilizers, for example.) And many can double their yields before water slows them down.

But for the out-front farmer—the one pushing for the most that modern-day farming can get from his farm—there's strong evidence that it may be nearly sundown on the day of the picnic.

There is a stopping place, or at least a leveling-off place, for increasing per-acre yields. And Conservationist Dick Dailey of North Carolina is convinced that the "stopper" will be WATER.

Dailey has a two-year survey and land-use study to back him up. Says: "When scientific agriculture has done all it can do toward increasing production, the limiting factor will be water." And, when that day comes, the farmer who has the most of it or who makes the most of what he has will be setting the pace.

Reprinted by permission from Farm and Ranch, 318 Murfreesboro Road, Nashville, Tennessee

According to the survey, that time is no more than 15 years away. The problem will become "very serious" by 1975. And in 20 years water consumption will double. The study tells how in the Greenville, N. C. area, water supply has already dropped (once) to 15 gallons per person per day (the drouth of 1958).

Moreover, Dailey figures that 274,000 acres of cropland will be lost to non-farm users in his state by 1975 (the amount equal to one big county). He goes on to explain that when suburban developments crawl into the counties they soak up water faster than farm operations. And he urges that more planning be done on a county basis.

All this means that present legislative fights over who is to control the water (Federal Government or states and individuals) are more important than farmers know. If somewhere out yonder water is to control their yields and their very profits . . . then "who controls the water?" is important.

While farmers (and others) sit and wait for the government to "do something," the chain is running out on things they can do themselves to kick production upward and offset increasing costs. Water may be the last and weakest link.

Small farm reservoirs and water storage in the soil—practices that serve farmers well in time of water shortage—can go a long way toward stopping floods. And, beyond that, cooperative efforts need to be under local and state control . . . unless you want Uncle Sam to do the rationing when the time for it comes.

Trend Of Land Prices

1. *Small Country Acreages* — 1 to 5 acres show steadiness in selling prices. High city taxes help keep up good demand.

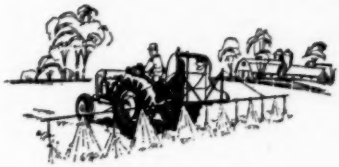
2. *Commercial Sites* — Stronger in price due to shortage of desirable locations. Doubled in cost per acre in the past 5 years. Further increase likely.

3. *Sub-division Sites* — Steady increase has occurred for some time. Leveling off in near future expected.

4. *Farms, Agricultural Purposes* — Showed steady increase until late summer of 1959. Past 6 months show an average decrease of 12% from peak price. Large acreage slightly more, small acreage a shade less.

Harry Swartz in Farm Facts

Wettable Powder In Weed Sprayers



How to avoid trouble . . .

Condensed from American Agriculturist

M. W. Meadows

SEVERAL years ago I dropped in on a farmer friend who was in the process of trying out a new chemical to control weeds in beets. Everything seemed to be proceeding nicely, that is for the first 50 feet. First one nozzle plugged, then another, and finally nothing came out.

My friend immediately began to cast aspersions upon the present generation and ancestors of whoever manufactured this sprayer. A quick check gave us the clue to his problem. This was his first encounter with a wettable powder. Not only were his screens and nozzle tips straining out the powder, causing them to plug, but we found most of the material in the bottom of the spray tank.

Not Entirely New

Certainly wettable powders are not very new in agriculture, since materials of this nature have been used successfully for years by growers of fruit and vegetables. But these men have high gallonage, high-pressure, hydraulically-operated spray rigs that are specially designed to handle wettable powders. These machines are equipped with piston type pumps, that resist the abrasion of a wettable powder. Mechanical agitation provided by a set of paddles keeps the wettable powder in suspension. Screens are designed to allow the largest particles to pass through. Nozzle tips that are subject to wear are easily and cheaply replaced. Also, the machine probably costs $4,000 or more.

How about my friend who cannot afford such an expensive piece of equipment? Can he handle wettable powders through his weed sprayer type machine?

Yes, he can. And it is worth his time to give this some thought since we are seeing more and more of these wettable powders—Simazine for weed control in corn; Sevin to control the Mexican bean beetle in beans; Karmex for control of weeds in grapes, etc.

Reprinted by permission from
American Agriculturist, 10 North Cherry Street, Poughkeepsie, New York

Tough Nut to Crack

The companies which produce these materials have exhausted practically all of their technical know-how in an attempt to make these chemicals either miscible with or soluble in water. To date no practical solution has been found.

Our next step then would be to adapt our present equipment to handle wettable powders. In doing this the following factors should be considered:

PUMP—As mentioned previously, wettable powders do cause more wear in a pump than would a water soluble or water miscible material.

To date, we have no reason to believe that this wear is excessive with the materials that we have mentioned. Nylon roller pumps during 1958 have treated several hundred acres of corn without undue wear. This deduction stems from the experience of growers who have applied these wettable powders over fairly large acreages. In addition, worn nylon roller pumps can usually be exchanged for a reconditioned pump for a nominal fee.

When using wettable powders, be sure to check your pressure often to make certain that wear has not caused a drop in pressure. When this occurs readjust the pressure to assure delivery of the correct amount of material.

Pump Size Important

Before buying a pump make certain that the capacity is sufficient to supply the maximum number of nozzles that will be used plus enough to supply 3 to 4 gallons per minute return overflow. In addition, the pump should have enough capacity to supply jet agitation when wettable powders are used.

NOZZLES—Nozzle tips should be equivalent to a spraying system 8002 or larger. Tips with an orifice size smaller than this might plug. Nozzles that are equipped with screens should have a 50 mesh or larger wire screen.

FILTERS OR STRAINERS—All filters or strainers in the spray lines should be of 50 or 60 wire mesh material. Filters or strainers made of felt or similar material will strain out the wettable powders and plug in a few minutes of operation.

One of life's most discouraging aspects is to have to work to repay money you've already spent.

AGITATION—Wettable powders must be constantly agitated in order to maintain a suspension. This agitation can be supplied mechanically or hydraulically.

Adequate agitation is easily

supplied with a jet agitator. This device consists of a head with three orifices. The head is hooked into the pressure line by use of a hose and the head suspended in the spray tank.

One of these agitators is sufficient to keep a 50 gallon drum roiled when operating at pressures of 30 lbs. or better. Two or more would have to be used in larger tanks.

MIXING WETTABLE POWDERS—Before a wettable powder is added to a spray tank, mix up a slurry or paste of the material with water in a bucket. When the spray tank is about half full of water add the paste or slurry. Shut off the spray boom and start the pump running.

The resultant mixture should give a suspension free of lumps, etc. If, for some reason, a tankful of wettable powder solution is allowed to stand for any length of time without agitation, check the bottom of the tank before commencing to spray. Do this with a clean paddle or stick.

WATER—Use a clean source of water to reduce the possibility of nozzle or screen plugging.

Occasionally there is a problem with excessive foaming in soft water areas. This is caused by the wetting agent in the wettable powder plus excessive agitation. To reduce foaming, cut down on agitation and add about one pint of kerosene or fuel oil per 100 gallons of spray solution.

Egg Room Light Helps Quality

Complaints from buyers about soiled eggs may be justified even though the poultryman thinks he's doing a thorough job. Extension poultrymen at West Virginia University say that improper lighting in the egg-packing room can often be blamed. The specialists suggest that daylight fluorescent tubes or daylight electric light bulbs be used in the egg cleaning area, because light rays from these bulbs create conditions as near to natural daylight as possible. In this light, poultrymen will be able to see soiled spots that might be missed under improper lighting. —*West Virginia University*

If you think a penny isn't worth much any more, listen to this: A farmer found out that one single penny can cost thousands of dollars. You see, his penny was in the fuse box instead of a new, inexpensive fuse. It caused a very expensive fire. Replacing a bad fuse with a penny is an open invitation to trouble . . . serious trouble. Don't do it!

Chimney Smoke

by Irene Rudie

Earth is instinct with spirt everywhere;
Each tree an aspiration; every cloud
A lowly lyric; every star, a prayer;
Each mountain-top, a stepping stone of God.
—Thomas Durley Landels

There's one good thing about those terrifying storms that come during a summer night—many fervent prayers are uttered then.

★ ★ ★

Directions for making pudding say, "when thick, turn into sherbet glasses," a neat trick if it worked, what with all the wedding and shower gifts due this month.

★ ★ ★

Kids of today who wear open-toed shoes and short socks are too close to going barefoot the year 'round to ever experience the thrill that was ours in the spring. Feet long imprisoned in thick stockings and heavy shoes broke out to feel the freedom of air and new grass.

★ ★ ★

Whose knee does that old "knee-high by the Fourth of July" saying refer to, a six-foot man or his three-foot son? And can the blade be stretched to meet the knee, or must it remain bent?

Today's hair and dress styles always seem prettiest, but even these — preserved in snapshots — will look silly in 1985.

★ ★ ★

In hot weather the body needs more salt and that's when the salt refuses to come out of the salt shaker.

★ ★ ★

The new bridegroom might well remember that his mother has had at least twenty more years of experience in cooking than has his little bride.

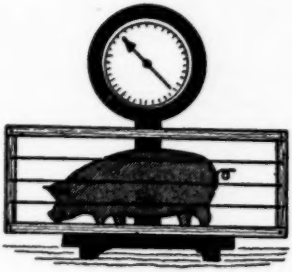
★ ★ ★

Every other day in June and July should be a Sunday to take care of all the family reunions, organization picnics, and local get-togethers that try to crowd into these two months.

★ ★ ★

Isn't it annoying to hear a radio announcer say blithely, "Well, it looks like another nice day today, not a cloud in the sky," when you are praying desperately for rain?

Cool Hogs Mean More Profit



Summertime is fine, but those porkers need more than shade to beat the heat . . .

Condensed from Pennsylvania Farmer

Dwight E. Younkin

SWINE don't sweat. That makes them poor customers for all the fancy deodorants down at the drug store. It also makes them mighty uncomfortable creatures when hot weather hits.

Unlike most farm animals, hogs cannot cool themselves by the evaporation of moisture from the skin. They are likely tenants for any handy pool or mud hole when the temperature beats its way above the 80-degree mark. It's cooling. They are also wild about automatic sprayers.

Brood sows do well in temperatures up to 65 to 70 degrees Fahrenheit, but beyond that they begin to lose appetite and lose weight. This points up the necessity of first, a well-ventilated shed in your summer sow pasture, and second, the advisability of a place for sows to get into some water. This can either be a constructed wallow (eight feet by ten feet for every ten to twelve sows) or access to a stream that flows through your sow pasture.

Most movable colony houses are too hot to be used as a shed unless the sides can be raised to provide good air movement.

Temporary shades with open sides are economical to construct and usually provide the coolest man-made shade. About 15 square feet of shade per sow will be needed.

Sows farrowing during hot weather need a well-ventilated farrowing house. You will have much less trouble with sows farrowing when the temperature is 65 to 70 degrees than at 80 degrees or more. Because sows do much better at farrowing time in a cooler environment, some midwestern hogmen are experimenting with air-conditioned farrowing houses.

The ventilating system for a

Reprinted by permission from Pennsylvania Farmer, Harrisburg, Pennsylvania

farrowing house during the summer should move about 100 cubic feet of air per minute per sow. This will help considerably in cutting down farrowing losses in hot weather.

It is just as important, and possibly more so, to keep your growing and finishing pigs cool during the summer months. Pigs being fed at a temperature around 65 degrees require only about one-half to one-third as much feed to put on a pound of gain as do pigs fed in temperatures around 90 degrees.

The recommended method of growing and finishing pigs is on concrete. By keeping them on concrete, the summer environment can be kept cooler if the feeding facilities are properly constructed.

1. The concrete is characteristically cool and by the addition of a sprinkling system to be used when air temperatures go above 80 degrees, the mist from the sprinkler will keep the concrete cooler than normal. A sprinkler will also keep the pigs in the area of the mist cooler, because of the cooling effect of water evaporating off the backs and sides of these pigs. It will take about two and one-half to three gallons of water per hour for every ten to twelve pigs. A fine sprayer nozzle works very well.

2. The roof providing the shade should cover the resting area as well as the feeders and waterers which will cause the pigs to eat more and make rapid and efficient gains. Pigs that have to walk through sunlight from shade to feeders do not gain well or economically in hot summer weather.

3. The sides of the feeding facilities should be constructed so that portions of the walls can be opened to permit good air circulation.

4. The roofs are higher than most pasture housing which helps to keep the hot air next to the roof away from the pigs.

Keeping your pigs cool during the summer costs little and can yield big dividends. Just remember the pig cannot sweat and if it gets too warm it will reduce its feed intake. This will mean it will take you longer to get your pigs to market this summer. A long delay could mean you will hit a falling market. Not only could you hit this lower market, but the heat could cost you twice as much to put on a pound of gain.

These are two losses you can minimize by keeping these hogs cool during the hot, summer months.

Cranberries are the only fruit that grows under water.

The Beef-Type Steer Is Coming Soon

Consumers want their beef tender. A dominant factor in producing a new type of steer . . .

Condensed from Breeder's Gazette

Bud Fichte

DETAILED and intensive research on meat tenderness has been conducted by Dr. Butler, Dr. G. T. King, assistant professor of animal husbandry, Texas A&M, and Dr. Sylvia Cover, professor, home economics, Texas Agricultural Experiment Station.

"Tenderness is a highly important quality from the consumer's viewpoint," Dr. King said. The causes of tenderness are poorly understood and no visible characteristics are known that are thoroughly reliable as an indicator."

Many factors control tenderness. Some of these are included in those used for determining carcass grade. Others are also important because different animals within a grade have tenderness ratings which vary widely. These include age, sex, method of cooking, connective tissue and muscle tissue.

No Fat—Tenderness Link

Tenderness does not necessarily increase as fatness goes up. This has been widely believed the cause of many dissatisfied customers. In the top four grades—prime, choice, good and standard—there is little difference in average tenderness of the meat. Lower grades are considerably tougher.

Beef producers face a stiff challenge in producing more tender meat.

Sire Is Best Tenderizer

"The most promising tenderizer is the sire," added Dr. Cartwright.

The leading factor confirmed by research is that tenderness is inherited.

"The sire's inheritance contributes tremendously to meat tenderness," Dr. Cartwright explained. There is a relatively close relationship between rate of gain and tenderness. The faster gainers are generally more tender. "This is one of the most encouraging points in the program. It greatly

Reprinted by permission from Breeder's Gazette, Columbia, Missouri

simplifies tests," the geneticist added.

As in any project, the most rapid improvement can be made by directly selecting for a factor, in this case tenderness. However, there is no recommended way for doing this. It is important that selection be made for an associated factor—here, rate of gain.

Research authorities are confident this change will occur. However, they add, it will be a slow process.

The prime factors connected with this change are difficulty in testing sires and the absence of an economic factor leading to production of leaner carcasses and more tender meat. To producers, the chief item is price incentive.

Housewives Choose Lean Meat

The final area of consideration lies with the consumer. According to Paul Goeser, head, Swift & Company's fresh meats division, Chicago, consumer desires point up the increasing importance of producing the meat-type steer.

Housewives are becoming more food value conscious and this will increase the selection of leaner beef in the future. Retailers have always been asked to trim away excess fat. Surveys indicate that a high percentage of consumers select for leaner beef grades even at prices equal to fatter grades. This preference is expected to increase if tenderness and leanness can be obtained in the same cut.

Finally, consumers prefer tender beef. This will always be the dominant factor.

These research results suggest that beef producers should go all out to produce the red-meated animal. If so, a breeder might find himself all alone with no market. But livestock authorities say that it might be wise to start now—so you'll be here in ten years.

"Breeders have to produce the kind of cattle for which they have the best market," Dr. Butler reminded.

"In the next few years top beef producers will be following their gain-tested animals through the packing houses and will be getting paid for their effort just as hog breeders who provide top quality hogs are paid now," he predicted.

Planting of currants and gooseberries is prohibited in certain areas of U. S. as they harbor fungus diseases of pine trees.

Selection of cows and bulls on performance offers hope for increasing the weaning weight and durability of cattle. Dr. Butler labeled recognition of superior productive traits by breed associations as highly progressive.

Beef Must Meet Competition

Today, beef enjoys great prestige in the American diet. However, beef producers will have to run fast to stay in the same place, much less move forward, Dr. Butler warned.

Other high protein foods have become more competitive. To remain competitive, efficient production and producing what the consumer wants are essential. These principles must be given greater attention by the entire cattle industry.

The beef steer of the future will mean more satisfaction and dollar profit for all segments of the industry. When moderate fattening is combined with desirable confirmation, the producer profits. He can raise that type animal more economically because it costs less to produce a pound of lean than a pound of fat.

The retailer profits because a higher percentage of the carcass weighs into a greater yield of high priced cuts.

Consumers like the increased weight of the edible cooked meat per pound purchased.

The packer can profit from the steady demand for better beef stimulated by satisfied customers.

When the meat-type steer arrives, beef cattle will be on firm ground in all phases of the industry.

USDA Finds Basic Cause of Plant Disease Resistance

USDA scientists have uncovered the first evidence of the thing in plants that make them resistant or susceptible to disease. The discovery is a basic one in plant science and may prove especially important to plant breeders searching for disease-resistant plants. Disease resistance is a primary objective in the development of almost all new crop varieties.

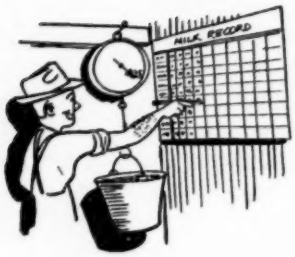
Here's the way this built-in resistance works:

When cells of a resistant plant are invaded by a disease organism, these cells and some of those around them die. This reaction kills the invading pathogen and stops the spread of the disease.

The substance discovered by the Federal-State crop scientists is a protein of the globulin type found in a particular race of flax rust fungus. This same substance was also found in flax plants susceptible to the same race of the fungus. Plants resistant to that particular race of fungus do not contain the protein.

—North Carolina State College

Supplemental Feeding of The High Producing Cow



Take full advantage of your dairy herd's improved inherited capacity to produce.

Condensed from Feed Age

Dr. Paul M. Reaves,
Virginia Polytechnic Institute

THE basis of feeding dairy cattle is forage — pasture, silage and hay.

The digestion of such coarse types of feed is relatively slow because of the time required for micro-organisms in the rumen to break down the cellulose into forms usable by the cow. Time for remastication is also involved.

Moving the feed through the rumen at a faster rate would get more feed nutrients into the cow. This can be accomplished with hay through fine grinding which reduces or eliminates regurgitation and remastication. The finely ground particles pass from the rumen in a short time. This, however, fails to give rumen micro-organisms sufficient time to digest very much of the fiber and to produce the normal amount of organic acids. Thus the digestibility of the feed is reduced and the butterfat content of the milk produced is often lowered.

Getting more feed nutrients in the form of roughages into the cow without these difficulties can be done by the use of very high quality feeds. Hays and silages made from good crops which are cut before they mature contain less fiber and require less digestion time. At this stage the TDN content is high, even approaching that of grain mixtures. Harvesting, curing, and storage methods which preserve practically all of the leaves help in this respect.

Cows consume less feed when fed poor quality coarse roughages and therefore, require larger quantities of grain. We say the coarse fibrous feeds are unpalatable, causing less intake. Along with this factor, let's look at two other phases of feed consumption. Does a cow eat to her fill and

· Reprinted by permission from Feed Age, 71 Vanderbilt Avenue, New York 17, New York

stop? A small amount by weight of coarse, fluffy feed will fill as much space in the rumen as a heavier amount of a feed of different texture. When it requires more time for the coarse feeds to move through the digestive system, the fill remains longer and the cow's appetite for more feed is lessened.

Whether we get much or little in the form of roughage feed into the cow, some more concentrated form of feed nutrients needs to be fed if we are to reach and maintain high levels of milk production. We might say that the only reason the cow needs concentrates is because of the limited capacity of the rumen (even though in large cows it may hold as much as 50 gallons — 300 pounds or more of material).

Feed consumption data available from eight experiment stations that cooperated in a feeding project were summarized in USDA technical bulletin 815. As more grain was fed, the cows ate less roughage but had a greater total nutrient intake. For each pound of grain consumed the cow reduced the hay intake by approximately 0.7 pounds. Thus, 0.35 pounds of TDN in the hay was replaced with 0.7 pounds from the grain. Apparently one pound of grain will fill a space equivalent to the space filled by 0.7 pounds of hay, and furnish twice as much TDN.

Energy is the largest item for consideration in feeding to supplement roughages. This is a matter of simply giving the high producing cow (the one which can be the most profitable) enough feed nutrients so that she can make milk up to or near her inherent capacity.

The kind of grain mixture to do this job can be different from some of the earlier recommendations. Simple mixtures can supplement good roughage equally as efficiently as more complex mixtures. This is not to say that a feed manufactured by a formula containing several ingredients is not a good feed or that it is not desirable. The use of by-product feeds of variable supply and feeds varying in price from time to time makes it more feasible to have a larger number of ingredients for the formulation and manufacture of commercial feeds.

Each ton of manure will replace about 10 pounds of nitrogen, five pounds of phosphate and 10 pounds of potash.

Control Of Bulk

The amount of bulk in the grain mixture can be looked at from several angles. We recommend that a mixture contain about 40 percent of bulky ingre-

dients or that the finished product weigh not more than one pound per quart. For cows on heavy feeding, say 15 to 20 pounds of grain mixture a day, this is a good guide and it will tend to keep cows on feed better than heavier feed mixtures. However, for cows receiving lesser amounts — up to 8 or 10 pounds a day — there should be no problem with bulk.

The bulky light-weight feeds have been called cooling feeds and are recommended to be fed in hot weather or to heavy fed cows at any time. Recent work at the Texas Experiment Station indicates that high-fiber, bulky types of feed increase the body temperatures of milking cows more than do heavier types of less bulky feed containing an equivalent amount of net energy. Of course, it does require fewer pounds of the heavier feed than of the lighter type feed.

Ventilation fans in barns should have inlets located near ceilings to mix incoming air with the warmest air in the stable before it reaches cows.

Protein Requirements

The Feed Survey Committee of the American Feed Manufacturers Association has studied the probable feed use for all our livestock and poultry and checked it against the available supply. An abundant supply is available, including protein concentrates. Until the last few years, good sources were not so abundant and many cows were underfed on protein. That situation exists in fewer herds today. In fact many good herds are fed more protein than is necessary. This has come about through good feeders improving the quality and amount of forage without reducing the percent of protein in the grain mixture fed along with it. The excess protein is used by the cow in the same manner as carbohydrates. The liver breaks down the protein and the nitrogen-bearing portion is excreted in the urine, leaving the carbohydrate fraction to be used as such in the body.

Liberal feeding of excellent quality legume forages, hay, silage, green crops and pastures, will supply all or nearly all of the protein needs, leaving additional energy to be furnished. We should encourage the type of roughage feeding which will require in addition not more than 12, 14, or sometimes 16 percent total protein in the grain mixture.

A roughage feeding program of low quality legumes or non-legumes will need to be supplemented with more pounds of protein. However, it requires more pounds of total grain feeding to

supply the needed energy so that the percent of protein in the mixture does not need to be increased very much. The difference in the costs of protein nutrients and other feed nutrients is not so great today, probably a difference of two or three percent of protein affecting the price per ton by about two dollars. While this is not a great difference, it is this kind of savings which the feed manufacturer should help the dairyman to make. On a class trip several years ago we were told by a successful dairyman that he changed his feed ration because he could save one-fourth cent per cow per day and still maintain a high quality feed mixture.

The color of milk and its carotene and vitamin A content is important to the sale of milk, especially fluid milk. While we do not expect the grain mixture to supply much of the carotene, we are concerned that the forages being fed are rich in it. The leafy green feeds are.

Minerals

Mineral supplements are of more importance to high producing cows than others because of the large amount secreted in the milk. Calcium and phosphorus are the ones most often needed. With legume roughages probably no additional calcium is necessary —phosphorus supplements contain calcium also. Free choice or one percent of a calcium and phosphorus supplement in the grain mixture will meet the need. It is advisable in our opinion to add ground limestone (a calcium supplement only) along with a supplement carrying both calcium and phosphorus, unless the roughage is a very low grade, non-legume feed.

The need for various trace minerals or minor elements are peculiar to certain localities where the soils and, in turn, the crops are deficient in them. Therefore, a general recommendation cannot be made. Neither is it a good practice to add a large number of them when it is known that only one or two are needed. Some are harmful in excess either in themselves or as they may affect the usefulness of other elements. Locally available information for the individual state or area should be followed.

When adults act like children they're silly. When children act like adults, they're delinquent.

The better cows and cow families give more difficulty with milk fever. Experimentally the feeding of massive doses of vitamin D during the 4 to 5 days before calving has been effective in reducing its incidence. On the

farm the results have been more variable. This is probably due mainly to getting insufficient quantity into the cow at the proper ime. Just when will the cow calve? Does she consume all of the feed which contains vitamin D? Because of side effects it should not be fed beyond six or seven days should she not calve on time. If the feed man supplies this supplement it is well that he help get the job done correctly.

High Production

A feeding program for the dry and fresh cow should aid in reducing the number of cases of acetonemia or ketosis. While this disease is not a simple one certain practices appear to increase the amount and severity of it. Again the effect is greatest on high producing cows with a greater loss of milk over a period of a few to several weeks. Having cows especially well fed during the dry period, then drastically reducing their feed just before and after calving seem to be contributing causes. A program of medium feeding during the dry period without drastically cutting the feed at calving, then getting the cow on feed after calving as quickly as she can handle it will help. She is in a stress period and should not be placed under more stress by underfeeding, which will cause her to draw too heavily on her body reserves at that time.

The average dairy herd today has an inherited capacity to produce more than feed and management will often allow it to express. The better fed herds are limited by their inheritance.

Under any feeding program for milking cows we should recognize that in every herd, one-half of the cows are producing above the average; also that any cow at the peak of her production will produce about 50 percent above her average for the year.

The feeding program, then, must be one that will supply the cow with the basic feeds used, plus supplements that will meet her needs at the *time* that they are the greatest.

Follow Herbicide Directions

"Read and follow the directions on the herbicide container label." That's the suggestion of O. C. Lee, Purdue University weed specialist.

Lee points out the farmer or home gardener should follow these three safety rules: Use the herbicide only on the crops for which it is recommended by the manufacturer. Apply the herbicide only at the time stated on the label. Use the herbicide in the amounts specified on the label. —*Farm News From Purdue*

Pests Thrive On Sun

Warm weather is a good time to suspect poultry parasites . . .

Condensed from Farmer and Stock Breeder

AS the weather becomes warmer insect pests are especially likely to become a source of trouble to growing and laying birds. The reason for this is that as the environmental temperature rises, insects that live on poultry begin to multiply at an extremely rapid rate. Infestations occur on poultry kept under all systems of management and now is the time that unsuspected infestations become obvious and should certainly be suspected if the feathering is poor, feather pecking breaks out or egg production drops.

The insect pests most commonly found on poultry are lice, mites or fleas. These rarely kill birds (the exception being the body louse) but, because of the persistent and severe irritation they set up and the amount of blood they suck, growth and feathering in the young birds and production in the adults can be seriously interfered with.

While on the perches the infested birds may be seen shaking their heads, ruffling their feathers, pecking at their bodies (especially in the region of the vent and abdomen) and moving from place to place.

Instead of enjoying proper rest they are disturbed by the sharp bites and the movements of the insects across their bodies, legs and heads.

The activity of the insects is most intense during the night when the warmth created by the birds on the perches attracts pests and causes the mites to leave their day-time quarters to take their feeds of fresh blood.

Lice

The most commonly found insect pests are the lice. These are flattened, greyish-white or brown, wingless insects with six legs. They have biting mouth parts with which they break through

Reprinted by permission from
Farmer and Stock Breeder, Dorset House, Stamford Street, London, S. E. 1

the birds' skin in order to suck fresh blood, which is their normal food.

Adult lice lay their eggs on the shafts and barbs of the feathers and, unlike the mites and fleas, live the whole of their existence on the birds.

There are three species of lice and although, for the purpose of extermination, it is unnecessary to be able to identify the different ones, it is important to know the sites on the birds in which they can be found if present.

The *body louse* is the most commonly found species. It lives on the skin around the vent and tail, and when the feathers in this area are parted the lice, pale yellow in color, can be seen moving around on the surface of the skin.

Some adult hummingbirds weigh less than 1/10 ounce.

Eggs (known in some parts of the country as nits) are found attached to the shafts of the feathers in this area.

The *wing louse* lives on the under-side of the wings and on the long feathers of the wings and tail.

The most injurious species of louse is the *head louse,* which is found on the head and neck. It is especially harmful to, and may kill, chicks at the age just before the feathers grow. It is rarely found on artificially reared birds.

Treatment: this is neither laborious nor expensive, and several methods are available.

Painting the perches with nicotine sulphate solution (40 per cent, using ½ lb. to 100 ft.) in the evening before the birds go to rest is effective for the treatment of birds which perch.

The heat given out by the birds causes the nicotine sulphate on the perches to vaporize, producing fumes that are lethal to lice. In slatted floor rearing houses it is sufficient to apply the solution to every third slat. D.D.T. and Benzine Hexachloride (B.H.C.) are both effective and can be used in the same way as nicotine sulphate, or, alternatively, as a powder applied directly to the birds.

A simple and effective method of using D.D.T. or B.H.C. in deep litter houses is to offer the birds a dust bath to which the drug in powder form has been added. The birds taking a dust bath treat themselves and in the dust that they create spread the powder all over the poultry house.

Mites

Unlike the lice, mites do not live continuously on the birds, but only visit them when they require food. The visits take place at night-time, when the insects gorge themselves with blood before

leaving the birds and returning to live in crevices near the perches, nest boxes and food troughs, in which they live during the daytime.

By far the most common species is the *red mite*. This mite breeds quickly during the warm weather, setting up heavy infestations which can live without feeding for five or six months.

It is red only when engorged with hens' blood; unfed it is a greyish-white color. The mite causes great irritation to the birds by biting, and when the infestation is heavy, birds may be killed out-right.

As well as disturbing the birds, the sucking of blood produces in them anaemia and loss of condition.

The *depluming* mite causes the feathers on the head, neck and around the tail to break off, leaving stumps which stick out of the skin. The irritation set up by mites causes the birds to peck at their bodies and to pluck their feathers.

The wounds that birds inflict upon themselves may be so severe that bleeding occurs. Where this happens, an outbreak of cannibalism may follow.

Treatment: the methods recommended for the extermination of lice are effective against mites.

It is important to remember that the mites lie up during the day in crevices and cracks (especially at the ends of the perches), and so these places should be well dusted with insecticide powder or painted with creosote or nicotine sulphate.

Fleas

The ordinary hen flea does little of importance to adult birds, but may be troublesome to the poultry-keeper, as the hen flea is, unlike the hen louse or mite, able to feed on other hosts.

Young birds are sometimes killed by fleas which cluster together on the head and neck. Broody hens are disturbed by their presence.

Flea eggs are laid and hatch on the bird. The young flea larvae fall on to the floor, and as they mature they attach themselves to other hosts.

Treatment: the insecticide powders containing D.D.T. or B.H.C. are effective.

Important changes are taking place in the education of people living on farms. Though farm people haven't yet caught up with city people in formal education, they are making good progress in that direction. A larger proportion of high school and college-age farm boys and girls are in school than ever before. The proportion of farm residents that are high school graduates is increasing rapidly.

Managing Your Farm Machinery

It may be new today but remember to plan ahead for replacement . . .

Condensed from Nation's Agriculture

Wayne Ritchie, Doane Agricultural Service

MOST farmers must depend on earnings and short-term loans to finance new equipment and other capital purchases they make.

They can't turn to the public through issuance of stock or obtain long-term loans from insurance companies and banks like large companies do.

To maintain the level of mechanization that you now have requires periodic replacement of machinery and equipment. If you aren't able to do this, your efficiency will slip in comparison and you'll be in trouble sooner or later.

To make these purchases with the least impact on your bank account, it's important to manage your depreciation properly.

Plan a replacement program for your machinery and equipment—build equity in some other part of your farm business so it can support the borrowings that will have to be made in future years—or put aside in those years you don't buy new equipment an amount equal to your annual depreciation.

Proper selection of depreciation methods will accomplish as much or more than anything else in smoothing out the impact of new machinery and equipment purchases.

One dollar of depreciation taken for tax purposes means you will have a dollar available to buy capital goods.

A dollar of net income isn't worth a dollar when you go out to buy farm machinery or, for that matter, anything you need for farm operation or family living. You have to pay income tax on it.

For most farmers it's probably safe to say that they at least have to make $1.33 in their farm business to have a dollar available to

Reprinted by permission from Nation's Agriculture, P. O. Box 267, Mount Morris, Illinois

pay for new equipment out of profits.

But, a dollar of depreciation is worth a dollar to you when spent for new capital equipment because the government allows you to recover, tax-free, that amount of money you spend for machinery and equipment used in your business.

This is why careful management of your depreciable assets is so important. It's your major source of funds for new investment. Properly handled, annual depreciation deductions can go a long way toward reducing the dent of new machinery and equipment purchases on your bank account.

Four facts you need to know about depreciation and its impact on your farm business are:

Depreciation "generates cash." It does this because it cuts your taxable income.

This example shows how this works. A farmer grosses $14,500 per year, has operating expenses of $6,000 and $1,200 of depreciation. He's married and has two children.

No Depreciation Figured

Gross Income	$14,500
Operating costs	6,000
Profit	8,500
Tax	1,075
Cash left	$7,425

Depreciation Figured

Gross Income		$14,500
Operating costs		6,000
Difference		8,500
Depreciation		1,200
Profit		7,300
Tax		837
	$8,500	
	837	
Cash left	$7,663	

In this particular case, the farmer had $238 more cash left in his business because of the depreciation charge.

The second "fact" about depreciation is that (assuming you have the necessary profits) the faster rate you use, the more cash you have left, as long as you are expanding your capital investments. This is accomplished either by using a straight line method and short life or either of the fast methods authorized by the 1954 Internal Revenue Code. Here's an example.

Slow Depreciation

Gross income		$14,500
Operating costs		6,000
Depreciation		1,200
Profit		7,300
Tax		837
	$8,500	
	837	
Cash left	$7,663	

Fast Depreciation	
Gross income	$14,500
Operating costs	6,000
Depreciation	2,000
Profit	6,500
Tax	690
	$8,500
	690
Cash left	$7,810

Where fast depreciation rates were used, a farmer would have $147 more cash left in the business at the end of the year. Of course his net taxable income would be lower because of the accelerated depreciation. Nothing was changed, in this case, but the depreciation.

Rapid depreciation soon dwindles out and leaves you in bad shape if income and depreciable equipment remain about constant. The table below shows how your annual depreciation deductions would drop each year if you started with $8,000 worth of depreciable property, 10-year life, and 20% declining balance method is used.

Year	Annual Depreciation
1st	$1,600
2nd	1,280
3rd	1,024
4th	819
5th	655
6th	524
7th	420
8th	336
9th	268
10th	215

Regular and systematic use of fast depreciation gives you the equivalent of a tax-free loan from the government. You'll never have to pay it back, either, so long as you keep adding new

TABLE I

Year	Total Investment	Annual Straight Depreciation	Total Depreciation	Annual Fast Depreciation, Sum-of-the-years	Total Depreciation	Difference	26% Tax Bracket	38% Tax Bracket
1	$ 1,000	$ 100	$ 100	$ 182	$ 182	$ 82	$ 21	$ 31
2	2,000	200	300	346	528	228	59	87
3	3,000	300	600	491	1,019	419	109	159
4	4,000	400	1,000	618	1,637	637	166	242
5	5,000	500	1,500	727	2,364	864	225	328
6	6,000	600	2,100	818	3,182	1,082	281	411
7	7,000	700	2,800	891	4,073	1,273	331	484
8	8,000	800	3,600	946	5,019	1,419	369	539
9	9,000	900	4,500	982	6,001	1,501	390	570
10	10,000	1,000	5,500	1,000	7,001	1,501	390	570
11	10,000	1,000	6,500	1,000	8,001	1,501	390	570

capital assets to the business.

Table 1 shows how this comes about. In this example, these assumptions are made: $1,000 capital investment made each year. A 10% straight line depreciation is used for "slow" method. Sum-of-the-years-digits method with a 10-year life used for the "fast" example.

Extra capital available to the user of the fast method was figured by subtracting the difference between the accumulated depreciation for each method. This was the amount that was not subject to tax. Your gain is then this amount times your tax rate.

Two rates are shown, 26% and 38%. You'll note that the higher the tax bracket you're in, the more benefit you receive from fast depreciation.

There's no magic in depreciation. You must pay for the tractor or combine which are depreciated. This can affect your bank account just as depreciation deductions do.

But, proper management of your depreciable assets can make paying for new assets a little easier. Depreciation won't do this by itself, though. It's only an accounting entry.

Without a sound program to utilize these depreciation deductions you can dissipate your depreciation on other productive expenses, or family living.

Then when it comes time to replace the worn-out tractor, combine or other depreciable item, there are no accumulated funds available for this purpose.

To prevent this from happening, a definite plan to reinvest or save at least an amount equal to your annual depreciation deductions is necessary.

If it isn't practical to buy new machinery, equipment or to make improvements each year, this money should be placed in a separate bank account, put into government bonds, or at least set aside mentally for replacement use.

Living, active insects generate heat in a bin of grain. This may cause mold, rotting, deterioration, and musty odors in the grain.

You might "use" this money for other purposes in your farm business by purchasing an additional cow for your dairy herd. This is possible because you saved some cash by having this depreciation deduction. But at the same time you have to remember that it is unavailable for purchase of new depreciable assets at a later date unless the cow is sold.

Plan purchases several years ahead by using a worksheet such as one published by the U.S. De-

partment of Agriculture.

You can budget the amount of cash you'll need over the next several years for the capital assets your farm business will require. By saving the equivalent of your depreciation deductions, you'll then be able to figure how much money you'll have to take from profits or borrow to make these purchases.

Profits are necessary before depreciation deductions influence the farm business except in loss carrybacks.

Therefore it is sound business to hold depreciation down if you're in the process of building up your business and expect profits to be greater in the future.

Thought is often an impediment to conversation.

Stretching out depreciation will give you an offset against those future profits.

The amount of depreciation taken influences your taxable income.

The faster the depreciation rate, the less income you have to pay tax on during the early years of ownership. Since tax is less, you have more cash left in the business.

Unless regular purchases are made, when rapid depreciation methods are used, total depreciation deductions will drop sharply within three to four years, and then you'll be worse off than if conservative, straight line rates were used. This is true as long as total income remains about level.

Longtime trends indicate that replacement costs of assets will be substantially higher in the future. Inflation is one reason for this.

Another, and very important one often overlooked, is that new equipment usually has more horsepower, more convenience features, does a better and faster job.

To help offset this differential in purchase price between the new and the old, take the 20% immediate depreciation write-off no matter what method of regular depreciation is used—provided you have enough income to do so without losing tax benefits or other authorized deductions and exemptions.

When money is borrowed to purchase the new asset, the 20% immediate write-off, plus as fast a method of depreciating as is practical, will give highest depreciation, and hence, lowest taxes, during the period when the loan must be paid back. This will reduce the impact of the purchase on the cash position of the farm business.

Unless an amount of money approximately equal to annual depreciation charges is saved

each year, the financial impact of renewing capital assets in coming years will be very sharp.

While it seems a shame to set this money aside when it is probably needed to expand other phases of the farm business, unless it is done you run the chance of wearing out your machinery and equipment and not being able to swing replacement.

You see, it's a vicious circle. Depreciation deductions decline as equipment drops out of the depreciation schedule.

This means more taxable profit, more taxes and less cash available to buy new equipment. At the same time the value of these older tractors, combines and other assets has dropped so low that when you go to trade you don't have much equity left. As a result a high cash "down" payment is needed which may be almost impossible to squeeze out of the business.

The supply of good used farm machinery is declining.

The rate of farm consolidation is slowing down. Most machinery offered at farm sales was purchased between about 1947 and 1952.

Advances in new equipment, wear and age are making used machinery less attractive.

You can't count on this source in coming years as a way of keeping first cost of capital equipment down.

This is another reason why careful planning of new purchases is more necessary than ever before.

Straight line method: Cost, minus salvage, divided by number of years of life. Example. Tractor cost $3,500, minus salvage of $500, equals $3,000,divided by 10 years of life, equals $300 annual depreciation.

Declining balance method: Multiply the cost of the asset by the depreciation percentage (generally twice the rate used in straight line depreciation). This is the annual depreciation. For each succeeding year deduct the depreciation taken and multiply the remaining value by the same percentage. Stop depreciating when value of asset equals originally determined salvage value.

A youth spends the years between 12 and 21 waiting to become his own boss. Then he gets married.

Example. New tractor cost $3,500. Salvage value $500. Maximum rate would be twice straight line rate or 20%. First year depreciation is 20% times $3,500 or $700. Second year depreciation is $3,500 minus $700 or 2,800 times 20% or $560.

Sum-of-the-years-digits - method: Add up the total years of life

(1 plus 2 plus 3, etc.) This is the denominator of the fraction. The numerator is the number of years of life remaining. Multiply this times the cost minus salvage value of the asset.

Example: $3,500 tractor with a 10-year life and $500 salvage value.

Add up the total years 1 plus 2 plus 3 and so on to 10. This equals 55 or the denominator.

The asset is new so the numerator is 10. $3,500 minus $500 equals $3,000 times 10 divided by 55 equals $545 depreciation the first year. The second year formula is $3,000 times 9 divided by 55 equals $490.

First year immediate depreciation: You must use the cash cost. Salvage is ignored when figuring this first year write-off. Limit is $10,000 worth of property if filing separately, $20,000 if filing jointly with wife. Combine purchased for $5,000, trade in on old combine $500. First year depreciation is $5,000 minus $500 trade or $4,500 times 20% equals $900.

After deducting the immediate depreciation $900 from the cost of the combine, then apply one of the regular methods of depreciation above. Where you have first year immediate depreciation and a trade-in, total annual depreciation becomes complicated. Ask your tax adviser for held if you need it. He'll be glad to help.

High Farm Investment

Farmers spend almost two-thirds as much for capital improvements as all manufacturers of durable goods combined. Farmers invested an average of $4.1 billion annually from 1955 to 1958 in new equipment and construction. Manufacturers of durable goods, including steel, autos, appliances, and machinery, spent $6.6 billion annually during the same period for these items.

—Louisiana State University

Weaning lambs at 50 to 60 days of age paid off with much faster gains in a University of Illinois test. During the first month after weaning, these lambs did not gain so well as unweaned lambs. But after that, they more than made up the difference with much faster gains. The early-weaned lambs were fed both in drylot and on pasture.

—University of Illinois

Ewe Management On A Calendar Schedule

Adapt this schedule for your flock . . .

Condensed from The Dakota Farmer

A SHEEP is a natural forager. Most growers will want to use as much pasture as possible in the various management phases.

The aim of a calendar schedule is to produce early market lambs weighing from 80 to 100 pounds at four to five months of age, using as much roughage and pasture as possible with a minimum amount of grain.

The following schedule was worked out by the South Dakota Extension Service:

Fall: Drench the ewes a month before the ram is turned in with them. For stomach worms and tape worms, use copper sulfate or nicotine sulfate. For nodular worms, use phenothiazine.

By 10 days before the ram is turned in with the ewes, they should be thin enough so that the hip bones show slightly. They should then go on three-fourths of a pound of oats a day, and a change to high-yielding pasturage will put them in gaining condition for good conception. Equal parts bonemeal, limestone, and trace mineral salt should be supplied.

To get late winter and early spring lambs, the ewes should be bred from September 1 to November 15. If ewes do not show pregnancy within 60 days, obtain additional rams. Ewes will be on pasture during the breeding season. Rams may work best if turned out at night. Alternate the nightly use of rams.

Winter: Provide as much good winter pasture as possible. Keep the ewes outside or in open sheds where they will get fresh air.

From the second week in November to the beginning of lambing, feed alfalfa, available hay, and one-half pound of grain daily — three pounds of alfalfa silage can substitute for the alfalfa. An alternate diet would be five to six pounds of corn silage, three pounds of hay and one-half pound of grain. Ewes should gain

Reprinted by permission from The Dakota Farmer, 1216 S. Main Street, Aberdeen, South Dakota

from 25 to 30 pounds during the gestation period.

To prevent pregnancy disease or lambing paralysis, the ewes will need at least one-half pound of grain per day during the last six weeks of pregnancy. If ewes don't get carbohydrates from grain, those having heavy lambs or twins will start to break down stored body fat to supply the needed energy.

Spring: Tag the ewes before lambing. Shear a part of the belly, flanks, between the hind legs, and over the dock before the lambs are born.

Try to save every lamb by using lambing pens and plenty of bedding. Warm quarters in a clean barn will help.

Insure a good milk flow. Continue grain feeding unless the ewes are getting corn or sorghum silage with a lot of grain in it. Early gains on lambs are the cheapest and help later performance. When the lambs are a few days old and able to follow the ewes, increase the feed to provide more milk.

Dock and castrate the lambs when they are from three to 14 days old. Shear before corn planting time.

Drench the ewes before turning them to pasture. Trim their feet. Put the ewes and lambs on the first early green pasture.

Summer: Dip or spray to control external parasites. Provide fresh water in the pasture at all times.

Sell fat lambs weighing 80 to 100 pounds directly from their mothers. Also, sell old or poor milking ewes.

After lambs are sold, ewes may l allowed to clean up grass and weeds around the buildings. Grain stubble makes good pasture later in the summer, but don't let them get too fat or it might interfere with fall conception.

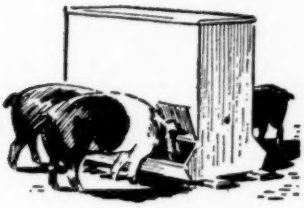
Obtain good, heavy ewe lambs or yearlings, or select the best early, fast-growing ewe lambs for replacements in the ewe flock. Do not keep late, slow-gaining types. Cull the ewe lambs for replacement purposes.

One hundred hens laying at a rate of 60 per cent give off at least 20 quarts of water every 24 hours. Some of the moisture is in the droppings; the remainder is in the form of moisture vapor expired by the birds.

Keep the rams away from the ewes except during the breeding season.

Get ready for the beginning of a new cycle. Any late, small lambs should be fattened to the heaviest acceptable market weight, sheared, and sold.

Feeding Our Hogs



Are we feeding as well as we know how?

Condensed from The Duroc News

Robert H. Grummer,
University of Wisconsin

ASK yourself, are we feeding hogs to the best advantage?

This is a good question, and it can be answered very simply with an emphatic NO! Perhaps I should conclude my comment at this point and avoid false or incorrect speculation. What we should know about feeding hogs today might not be the same as what we should know about this subject tomorrow, next week, or a year hence. I am inferring that we are constantly changing the hog and its environment and thereby also constantly changing nutritional requirements.

Mother Nature perfected the wild beasts that were ancestors to our presently domesticated animals. These wild forebearers were delicately balanced organisms — designed for one purpose — that of survival. Undoubtedly, characteristics such as large litter size, fast growth and heavy hams were hindrances to survival.

Then man lifted the "hog" from its native environment and subjected it to many gradual but marked changes to better fit the specie for the needs and purposes of mankind. This process of domestication surely caused new stresses which the hog was not prepared for because of genetic limitations and because of faulty environment. To illustrate what I mean, might I point out that domestication g r e a t l y multiplied problems of disease and parasites, which in turn created a need for greater knowledge of nutrition.

The early changes imposed on the hog during domestication were undoubtedly more severe than those of the present era. But the environment of, and the genetic makeup of our hog population is by no means static. New swine programs, such as meat certification, confinement rearing, multiple farrowing and early weaning are without question altering the nutritional require-

Reprinted by permission from The Duroc News, 237-9 North Monroe, Peoria, Illinois

ments of hogs. Therefore, even if we had known all there was to know about feeding five years ago, or one year ago, a part of that information would probably be obsolete today. Because of this constant change we will never reach perfection in swine nutrition.

How much do we alter nutritional requirements when, through selection, we increase litter size by one pig or decrease the fat covering of the market hog by one-half inch?

What environmental and/or genetic changes were responsible for the rather sudden need of supplemental zinc by some hogs? Why do some herds require 50 or more parts per million of zinc in the feed, whereas others require considerably less?

Let us consider a few of the things that would help us do a better job of feeding our hogs. First of all, we need simple methods to quickly determine nutritional deficiencies. The first symptoms of nutritional deficiencies are usually non-specific. Slow growth, poor skin and hair coat are early symptoms of nutritional deficiencies—these same symptoms also accompany certain chronic infectious diseases. If the deficiency is borderline, dramatic symptoms never appear. Mass fortification is usually prescribed. Is this an economical remedy? Might not the addition of one specific nutrient sometimes stimulate greater response than that caused by adding "the works"? Borderline deficiencies cost the swine industry many dollars and we need methods to accurately diagnose them.

Most everyone will agree that the stress of infectious disease affects nutritional requirements. Yet little, if any, work is being done jointly by nutritional and veterinary researchers to investigate this important area. Diseases of the digestive tract causing scouring undoubtedly interfere with digestion and metabolism. We know there is a relationship between vitamin A and infections of the respiratory tract, but what

Dehorn, castrate and vaccinate calves before they are two months old.

is the specific vitamin A requirement of an animal infected with a specific respiratory disease? Is it not possible that infectious arthritis might cause unusual demands for one or more of the minerals? I am not suggesting that infectious disease can be prevented or cured by proper nutrition, but I am suggesting that certain diseases might dramatically increase the need for one or more of the critical nutrients, and

that nutritional therapy might greatly aid recovery.

On the other hand, if a program of rearing disease-free hogs is found to be successful in the field, our feeding problems may be greatly reduced in the future.

The increased production of fast-growing, heavy-muscled hogs appears to be adversely affecting quality of carcass. There is some evidence that meatiness and quality are not completely compatible. If this is true, we need to correct the problem by breeding, management and/or nutrition. Soft, watery, off-color pork is undesirable and initial investigations show that quality characteristics

Farming is a business. Follow business principles.

can be affected experimentally by feeding and exercise, but more research is needed to fully understand the fundamental and practical solution to this problem.

We also need further research on how we can feed hogs to improve the fat to lean ratio. True, the most logical approach to this problem is through breeding and selection, but while we are waiting for this somewhat slow method of progress, some hog growers might want to take advantage temporarily of feeding practices that influence fat to lean ratio. Limited feeding improves this ratio; however, limiting the feed intake by the hand feeding method increases labor costs. Self-feeding a bulky, fibrous ration accomplishes the same purpose. Hog growers having the option of selling on rail grade or critical live grade might well consider a limited feeding program if their herds do not have the genetic ability to produce top grade carcasses. More research is needed to evaluate the potential influence of nutrition on carcass excellence.

Another area of ignorance is the effect of feeding on the reproductive behavior of sows and boars, especially the latter. Initial work has demonstrated that fertility level in the sow is sensitive to nutritional variation. Egg production can be dramatically influenced by feeding, and pig survival during pregnancy is affected by the nutritional state of the sow. Yet, there is insufficient knowledge to capitalize on the maximum potential of live pigs farrowed. The interrelationships of nutrition and reproductive hormones still, for the most part, remain a mystery. The effect of feeding on sperm production and viability is largely unknown.

Feed conversion has recently been in the limelight. Testing station results have focused attention on this most important eco-

nomic factor. Unfortunately, some evil usually accompanies progress. Rations used at some stations have been ultrafortified to give the maximum conversion and maximum growth rate. Many farmers are using these same formulas in their home feeding operations. There is nothing wrong with this except—cost of gain is being ignored. We have yet to learn how to feed more economically. Selection of ingredients and formulation have been based primarily on animal performance, with too little regard for cost. While this is an excellent research approach, it isn't the complete or final answer for the man raising hogs for a living.

Hog feeders have an opportunity to help their own cause in determining the most economical feeding practices. Modern confinement feeding barns with several lots allow farmers an opportunity to make feeding comparisons on their own farm. The most profitable program for one hog grower might be quite different from that for another.

Yes, we could go on and on with a never-ending list of "unknowns" — feeding and growth hormones, feeding and enzyme production, feeding and immunization—one's imagination and speculation could run rampant.

Fortunately, science has allowed us to partially remold the hog so as to make it a more useful beast. The end of this remolding job is not yet in sight. No, we don't know all that we should about feeding and we probably never will.

Cow "Machine"

Here's a schoolboy's essay on the milk cow that will make you chuckle:

"The cow is a mobile, antimated machine, housed in unprocessed leather. One end is equipped with a mower, grinder, bumper, headlights, wingflaps, and foghorn. At the other end is a milk dispenser and a movable insect repellent.

"Centrally located is a conversion plant of a combination storage and fermentation vat, three converters in series, and intricate arrangement of conveyor tubes, a central heating plant, pumping system and air conditioning.

"Although secret, this plant is unpatented. It is available in various sizes, colors, and output ranging from 1 to 20 tons of milk a year."

—The Progressive Farmer

FUN ON THE FARM

A Collection of Jokes and Humorous Farm Stories

A farmer was explaining to a city woman what a menace insects are to farm products—how corn borers destroy corn and potato bugs ruin potato crops.

The city cutie listened attentively, then exclaimed: "And the poor dairy people . . . how the butterflies must bother them!"

Mrs. Joe Shepard in The Progressive Farmer

★ ★ ★

"Everybody's getting lazier, nowadays. It's called progress."

★ ★ ★

The visitor produced his card and remarked: "I am a government inspector and am entitled to inspect your farm."

A little later the farmer heard a scream from his alfalfa patch, where the inspector was being chased by a bull. Leaning over the gate as the inspector hastily drew near, the farmer shouted:

"Show him your card, mister, show him your card."

Texas Future Farmer

★ ★ ★

Life: An everlasting struggle to keep money coming in and teeth and hair from coming out.

Two cows were grazing along the highway when a tank truck of milk rumbled by. On the side of the vehicle was printed: *"Pasteurized, homogenized, standardized, with vitamin A added."* One cow turned to the other and said: *"Makes you feel sort of inadequate, doesn't it?"*

Johnny Sherrer in The National Future Farmer

★ ★ ★

Sir Thomas Lipton, the tea magnate, showed his business acumen at a tender age. While a small boy, his parents ran a small country grocery store. One day Tom said to his father, "Dad, you should let mother sell the eggs."

"Why?" asked his father puzzledly.

"Because," Tom pointed out, "in mother's hands the eggs look much bigger."

—Harold Helfer in Future

★ ★ ★

America has drive-in theaters, drive-in supermarkets, drive-in restaurants, and drive-in banks. What it needs now is more drive-in parking spaces.

Television has opened many doors, mostly on refrigerators.

★ ★ ★

A motorist was driving along a country road when he saw a big sign "Beware of the Dog." Farther down the road was another "Beware of the Dog." As he drove along, there was still another sign "Beware of the Dog." Finally he arrived at the farm house and there was a little poodle standing in front of the house.

"Do you mean to say that little dog keeps strangers away?" he asked the farmer.

"No," replied the farmer, "but the signs do."

Wisconsin Journal of Education

★ ★ ★

The conversation had turned to the ways of wives. "Well," said Simpkins, "when my wife and I have an argument I always have the last word."

"Really," said his friend, how's that?"

"I apologize."

The Southern Planter

★ ★ ★

Most of us spend a lifetime going to bed when we are not sleepy and getting up when we are.

★ ★ ★

On his first visit to Australia, a Texan was being shown around a vast ranch. "Why, this would be just a teensy little corner of my spread back home," he bragged.

When he arrived at where a huge herd of cattle were grazing, he commented, "Purty, but they'd get lost among my herd."

A kangaroo suddenly came up behind him and leaped by. The startled Texan exclaimed, "What in tarnation is that?"

His Australian host calmly answered, "You mean you don't have grasshoppers in Texas?"

The Balance Sheet

★ ★ ★

Girls who buy cheap hosiery get a run for their money.

★ ★ ★

The preacher at the close of his sermon discovered one of his deacons asleep. To teach a little lesson, he announced, "We will now have a few minutes of prayer. Deacon Brown will lead."

"Lead?" said Deacon Brown, suddenly awaking, "I just dealt."

Implement & Tractor

★ ★ ★

A nineteen-year-old youngster whose bull had taken first prize at the Aberdeen Show had much of the salty wit of the true Scot. He had looked after his own beasts almost from the day he could toddle. One day a visitor to the farm patted him on the head and asked him if he liked school.

"No!" came the prompt reply from the small chap, with all the vehemence he could command. "No — it interferes wi' ma

work!" And he stumped off to the byre and the real business of life.

Aberdeen Angus Review

★ ★ ★

Sign in a church basement: Rummage Sale. Good chance to get rid of anything not worth keeping but too good to throw away. Bring your husband.

★ ★ ★

Two reasons why women don't wear last year's clothes: They don't want to, and they can't.

★ ★ ★

Two natives of a little New England village met on the street one afternoon, and after a long discussion about hunting, fishing and the local crop situation, one of them said:

"Say, how's your better half?"

The other man looked at his questioner with disdain in his eyes.

"She's all right," he exclaimed, "but look here, man, you're sure mighty careless with your fractions."

Holstein-Friesian World

★ ★ ★

Even a woodpecker owes his success to the fact that he uses his head.

★ ★ ★

A young man took his city-bred girl friend to a night club in Las Vegas, a place decorated in cowboy style. After a while the girl excused herself to go to the powder room. She returned a moment later, her countenance a blushing red. "Ted," she said, "you'll have to help me. Am I a heifer or a steer?"

Farm Store Merchandising

★ ★ ★

Television certainly helps you to get acquainted with a lot of new people — mostly repair men.

★ ★ ★

The woman visitor dashed angrily up to the beekeeper and complained, "One of your bees stung me, I want you to do something about it."

"Certainly madam," said the beekeeper soothingly. "Just show me which bee it was and I'll have it punished."

Arkansas Valley Journal

★ ★ ★

The Air Force claims the loss of four mice in space was really a scientific triumph. It proved it could build a better mousetrap.

Minneapolis Tribune

★ ★ ★

Farmer (pulling with one mule): "Giddap Pete! Giddap Barney! Giddap Johnny! Giddap Ralph!"

Stranger: "How many names does that mule have?"

Farmer: "His name's Pete, but he don't know his own strength so I put blinders on him, yell a lot of names and he thinks other mules are helping him."

The wife was reading her husband's fortune on a weight card. "It says you're dynamic, a leader of men, and admired by women for your good looks and strength of character. It's got your weight wrong, too!"

★ ★ ★

If you want your wife to sit up and take notice—talk in your sleep.

★ ★ ★

"When the seeds come up, how can you tell the plants from the weeds?" asked the amateur gardener.

"Pull them up," declared the experienced gardener, "the ones that come up again are the weeds?"

Texas Farming and Citriculture

★ ★ ★

Not many years ago you used to dream about making the money you are now starving on.

★ ★ ★

Two wives were talking. "Would you believe it," said the first one, "I caught my husband flirting?"

"Well, of all things," replied her friend, confidentially. "That's the same way I caught mine."

The Dakota Farmer

Piperazine Citrate Has Effect On Quality Of Egg Yolk

It isn't a good idea to use piperazine too often in the poultry flock unless worm infestations definitely make it necessary.

That's the conclusion passed along by poultry scientists at Virignia Polytechnic Institute who have recently completed a study on the effect of piperazine citrate on egg yolk quality. They point out that it is a common practice among Virginia poultrymen to treat layers with piperazine citrate, followed by an antibiotic feed, for the control of roundworms. Often this treatment is repeated each month.

The VPI study indicates that treating with piperazine citrate had no significant effect on yolk mottling, but a dark discoloration of the yolk occurred much more often in the groups receiving repeated treatments of close-to-recommended levels of piperazine citrate. This condition was found more often in eggs stored at 55 degrees and 70 percent humidity for two weeks than those held under the same conditions for one week. —*Virginia Polytechnic Institute*

Ten Points To Dairy Profits

Here's a valuable guide for your dairy business . . .

Condensed from Butter-Fat

Compiled by
University of Missouri and U.S.D.A.

THESE ten points can serve as a very practical guide to check your dairy herd management and profits.

1. Keep Records

Dairy Herd Improvement Association (DHIA), Owner Sample (OS), or Weigh-A-Day-A-Month (WADAM).

To select brood cows.

To cull the loafers.

To pick good heifers for herd replacements.

To improve your herd sires.

To improve feeding and management.

To know your herd—its strong points—its weaknesses.

2. Provide Plenty of Pasture

It's the cheapest feed

It saves labor.

It increases production.

It uses land not suitable for other crops.

3. Manage Pastures for Greater Returns in Labor Saving and Production

Have a succession of seasonable pasture crops.

Don't overgraze.

Consider rotation grazing, strip grazing, or green feeding for better utilization of pasture acres at their best stage.

Use lime and fertilizer for better yields.

Supplement pastures with concentrates, hay or silage as required.

Save surplus hay and pasture as silage.

4. Cut costs with Quality Stored Roughage

Provide high quality roughage, hay and silage, for non-pasture months and short pasture periods—it's a must for most profitable production.

Reprinted by permission from Butter-Fat, 425 8th Avenue West, Vancouver 10, B. C.

Cut hay early and put up with minimum exposure to rain and dew.

Put up silage at correct stage of maturity and moisture content.

Palatable roughage cuts concentrate needs—lower costs.

A variety of good roughage encourages greater total consumption of roughage.

Feed costs can be cut 20 to 25 percent with plenty of good palatable roughage.

Have a reserve supply in the silo.

5. Supplement the Roughage Ration

Feed a balanced ration.

For best production with economy, use the kind of concentrate mixture that supplements the roughage being fed.

Feed liberally—it pays!

6. Determine Future of Your Herd With High Quality Herd Replacements

Use the best sires available.

Consider artificial breeding for safety, economy and good breeding.

Cull low producers and undesirables.

7. Breed Cows for a 12 Months Interval Between Freshenings.

Keep complete breeding records for accurate breeding management.

Breed cows no sooner than 60 days after freshening.

Vary the time of breeding heifers to help keep the herd on a fall freshening schedule.

8. Strive for High Production Per Acre, Cow and Man for Lower Costs and More Profit

Aim for: 10,000 pounds of milk per cow;

200,000 pounds of milk per man;

2,000 pounds of milk per acre.

Keep the right number of good cows to make full use of labor, equipment and forage.

9. Don't Let Diseases Steal Your Profits

Eradicate Brucellosis with a testing and calf vaccination program.

Prevent mastitis by proper sanitation and good milking management.

Exercise practical general sanitation and disease prevention.

10. Produce Quality Products for Highest Prices and a Universal Market

---

Provide hogs with plenty of fresh water. Growing-finishing hogs will drink about two pounds of water for each pound of feed consumed. A sow suckling a large litter of pigs will drink as much as five gallons of water daily.

The Use of Feed Additives

Late information on a timely topic. . .

Condensed from
Texas Agricultural Progress

H. O. Kunkel, Texas A & M College

THE most significant advances in swine, poultry, sheep and cattle nutrition in recent years have involved the implantation of drugs or the inclusion of non-nutritive drugs of some sort in the diet of farm animals.

We have discovered a promising means of increasing the farm meat production, that is using feed additives or implants to push the animal to higher levels of performance.

Regulation of Additive Usage

Whenever a drug can become a component of food directly or indirectly, the U. S. Food and Drug Administration regulates its use. FDA considers that a drug may become a food additive through addition to the animal's feed or water, regardless of whether residues of the drug become a component of the human food derived from the animal.

At present, the FDA works under a new law which has as its goal the setting of safety tolerances for additives. The law, however, carries an amendment which reads: "No additive shall be deemed to be safe if it is found to induce cancer when ingested by man or animal, or if it is found, after tests which are appropriate for the evaluation of the safety of the food additives, to induce cancer in man or animal."

Certain of the estrogens and arsenic compounds have caused cancer in mice fed in large doses. Their use has been frozen by an FDA administration order. No new producers can get into the field, formulas cannot be changed, labels cannot be changed and no new business may be solicited. At present, we do not know whether estrogens or arsenicals will be banned or, after court tests, the way will be cleared for their continued use.

Tissue-building Drugs

Diethyl stilbestrol or stilbestrol, estradiol and hexestol act as female hormones or estrogens. At

Reprinted from Texas Agricultural Progress, Texas A & M College, College Station, Texas

higher levels, they produce secondary sex characteristics—high tailhead, udder development and poorer carcass quality. At lower levels, the undesirable effects are less evident.

At lower levels, the estrogens also stimulate growth, but not fattening. Growth seems to be stimulated more in older animals which normally tend to gain weight by fattening rather than by an increase in lean. The important fact is that, with the proper level of estrogen, the growth of lean can be improved without decreasing the rate of fattening.

Both feeding and implanting stilbestrol are now widely used with beef cattle. Whether the estrogen is fed or administered by implants is largely a decision of the producer since the results with both methods appear to be comparable and the advantage of either method over the other is slight. Implantation, however, does not seem to be advisable with heifers. Smaller dosages of stilbestrol may be needed for cattle on pasture than have been recommended in drylot.

Little information is available on the effect of stilbestrol administration during the wintering period or summer pasture season on subsequent performance. Generally there has been less response with subsequent re-treatment with stilbestrol, but in some experiments the response was not affected by previous stilbestrol implantations. At a level of 10 milligrams per head per day, stilbestrol does not seem to affect reproduction in heifers. Feeding 10 times the recommended level will interfere with conception.

Hexestrol usage remains under complete FDA ban.

Antibiotics

The principal antibiotics recommended as supplements to cattle and sheep are aureomycin and terramycin. Penicillin may help in bloat cases, but the continuous use of penicillin is not recommended.

In general, the antibiotics are fed to beef cattle to reduce the incidence of disease—shipping fever, foot rot, calf scours, liver abcesses, pneumonia and death—as well as to increase the rates of gain. If the disease level is low, antibiotics tend to show less response, but the disease-free animals do better than antibiotic-treated sick animals. Since no one knows when disease will strike, it may be desirable to use antibiotics wherever it is practical. The response with suckling calves is more consistent than with cattle past the weaning age.

Everyone is ignorant — only on different subjects.

Tranquilizers

Thus far, the only tranquilizer that has received federal sanction for continuous feeding is hydroxyzine. The beneficial effects of hydroxyzine in improved rate of gain and efficiency of feed utilization have not been as consistent as with stilbestrol, but the low level required, as compared with the average response, seems to justify its use. With both sheep and cattle, hydroxyzine (Tran-Q) may be more effective when stilbestrol is administered. There appears to be no differential response with the various sexes. The tranquilizer has no significant effect on carcass grades.

Chemobiotics

A series of synthetic compounds are called chemobiotics because of their antibacterial action. One, tetraalkylammonium stearate (Dynafac), has been cleared for feeding to beef cattle.

Results with the chemobiotics are generally indefinite, with experiment stations in the South and Midwest generally reporting little or no benefit and even detriment, while stations in the Northwest report some benefit. The results may depend on environment and ration constituents.

Alcohol

Ethyl alcohol (ethanol) has been incorporated into urea-molasses mixtures to improve the physiological use of the urea. Gains and efficiency of feed utilization are not affected when grain (starch) makes up the major carbohydrate portion of cattle diets. There is some preliminary evidence that carcass quality and marbling are increased with ethanol supplementation, but the high cost of ethanol offsets most of its beneficial effects.

Antithyroid Drugs

Most antihyroid drugs are bitter and unpalatable. Tapazole (1-methyl, 2-mercapto-imidazole) was tested recently and found not to markedly affect feed intake and cause some increased gains. Any effect of tapazole appears to be of short time, lasting only 30 to 60 days. Tapazole is still an experimental drug and should not be fed in cattle diets until more information can be gained and the FDA grants clearance.

Theodore Roosevelt, at 43, was the youngest man to be inaugurated President of U. S.

Anthelmintics

Phenothiazine has not proved to be an effective feed additive. The unpalatability of the drug requires mixing it with relatively large quantities of concentrates. When large quantities of concentrates are fed, the usual parasite infection is of little consequence.

Microbial Preparations

Dried rumen organisms have not proved to be of any significant benefit.

New microbial enzyme preparations have shown some promise in feeds for beef cattle as long as such feeds contain low-moisture corn. The enzyme preparations also are yet in the experimental stage. Their use probably will require federal and state clearance before the preparations can become available.

A War Never Fought

In Frontier Times sugar was usually very scarce with the result that honey became a much prized substitute and bee trees, of course, were usually spared from the woodman's axe. But there is an important and historic record of not one but three bee trees being cut down by a frontiersman near what is now Farmington, Iowa. The trees stood on land where, because of inaccurate surveying, both Iowa and Missouri were claiming jurisdiction.

Iowa heard of the removal of the trees and in righteous wrath undertook to fine the woodsman $1.50. Missouri learned of the matter too and sent a sheriff to arrest and imprison the culprit.

The Iowans then seized and locked up the Missouri sheriff, whereupon Missouri's Governor Boggs promptly mustered 2200 militiamen—tough veterans of the Black Hawk Indian War. Governor Lucas of Iowa countered with 1200 homespun soldiers, also handy with their shooting irons.

The opposing forces met and prepared for action. They would fight it out if it took all Winter. The weather, however, turned unexpectedly cold, with the result that whiskey supplies soon ran low—and simultaneously the urge for battle. So both sides decided to go on home and the "Honey War" was never fought.

In 1851 the courts fixed the disputed boundary, giving most of the area to Iowa. Thus three bee trees brought to a head a situation, close to warfare, that resulted in the acquisition by Iowa of what turned out to be a rather sizable piece of real estate—a dozen or so counties.

When it was all over and harmony had been restored, the frontiersman who had chopped down the trees, was delighted to find his land in Iowa rather than Missouri for, as he put it, "I hear tell the climate 'n soil of Missouri ain't fittin' to raise decent crops."

Tree Trails

What's Your Son Going To Do?

Many farm boys are and will be seeking non-farm jobs . . .

Condensed from Iowa Farm Science

Lee G. Burchinal, Assistant Professor of Rural Sociology, Iowa State University

EITHER by choice or necessity, thousands of young men from the farm are and will be seeking nonfarm jobs.

Most of these jobs are in urban areas. And the farm boys who leave their communities must compete for these jobs with young men who've been raised and educated in rural areas, in small towns and in big cities.

How well are farm boys prepared to compete for these jobs? What initial and long-run advantages and disadvantages do farm youths have in competing with nonfarm youths for their places in an urban setting? Answers are important, because many farm youths will have to compete with their nonfarm counterparts in seeking favorable nonfarm jobs.

Some folks have suspected that nonfarm boys have an "edge" on farm boys in the competition for nonfarm jobs. And a single limited study recently completed at Iowa State does lend some support to this.

Information was obtained by questionnaire from 33 high school boys in the tenth and twelfth grades — 103 farm boys and 118 small town boys who lived in the same west-central Iowa county and 102 boys who lived in a central Iowa metropolitan area. Rural nonfarm boys were combined with small town boys since most of them lived in a county seat town of about 4,800 persons.

While the results don't necessarily represent the state as a whole, they do provide some information on how farm, small town and urban high school boys "stand up" with each other.

What We Found . . .

There were no substantial differences in school grades or participation in school activities.

We questioned farm boys and

Reprinted from Iowa Farm Science, Iowa State College, Ames, Iowa

small town boys who lived in the same county and attended the same schools about their school grades and school activities. There was little difference—except for a slight tendency for farm boys to be more active than small town boys in school activities.

Farm parents were less involved in their sons' occupation plans.

Almost 50 percent of the farm boys said that their fathers hadn't said much to them about occupation plans. This was true of 36 percent of the small town boys but of only 28 percent of the urban boys. Boys talked over occupation plans more frequently with their mothers. The figures here are 34, 27 and 23 percent for farm, small town and urban boys, respectively.

Farm parents provide less encouragement for their sons' education beyond high school.

We asked the boys in separate questions how their mothers and fathers felt about the boys' educational plans. The results indicate that:

1. Urban and small town parents are more likely to *definitely* encourage their sons to consider education beyond high school. For all three groups, mothers were rated more frequently than fathers as definitely encouraging the boys to go on. For example, 32 percent of the farm boys said that fathers definitely encouraged them to plan for education after high school, while 47 percent reported definite encouragement from their mothers. Corresponding figures for small town boys were 47 and 66 percent for fathers and mothers, respectively; for urban boys, 65 and 76 percent.

2. Farm, then small town, parents were more likely to be rated as being *interested* in their sons going on, but *not* pushing them to do so.

3. Farm, then small town, parents also were more frequently rated as being "not too concerned" or as being against the educational plans of their sons.

Farm boys less frequently reported educational plans of any sort beyond high school.

A full 30 percent of the farm boys—compared with 18 percent of the small town and 12 percent of the urban boys—reported that they had *no* educational plans beyond high school.

The life of an adult May Fly is about 6 hours.

Farm boys less frequently plan to enter college.

About 47 percent of the farm boys said they plan to enter college — compared with 62 percent of the small town boys and 81 percent of the urban boys. About

23 percent of the farm boys, 20 percent of the small town boys and 7 percent of the urban boys said they planned education after high school in the areas of business or vocational training.

Among boys planning to enter college, farm boys had less frequently chosen their college or university.

Of the high school seniors planning to enter college, 60 percent of the farm boys, 63 percent of the small town boys and 80 percent of the urban boys said they'd already selected their college or university. Though there were differences among boys at different grade levels in high school, the same trend was observed.

Differing Views . . .

We asked the boys, "Generally speaking, what do you want most from the job that you want to make your life's work?" The answers that the boys checked included: Be my own boss. Chances for advancement. Friendship of fellow workers. Work which will be interesting. Pleasant working conditions. Intellectual challenge. Opportunity to be someone. Chance to make good money. Chance for good hard physical work.

In U.S.D.A. experiments, grass silage losses were kept low by sealing the silo with a plastic cover weighted at the sides and covered with 2 to 3 inches of sawdust.

Responses showed that "work which will always be interesting to me" was rated as of highest importance by farm, small towns and urban boys. The three groups rated "advancement on the job," "chance to make money" and "pleasant working conditions" in about the same way as of moderate importance. "A job which will give me an opportunity to be somebody" or one providing a chance for physical activity rated low for all three groups of boys.

But there were definite differences between the farm and other boys for three of the work conditions. Farm boys rated "being my own boss" as highly important. Small town and urban boys attached only moderate importance to this. And, while farm boys rated "friendship of fellow workers" as moderately important, small town and urban boys rated this as of low importance. On the other hand, farm boys rated "intellectual challenge of the job" as of low importance, while small town and urban boys ranked it as of moderate importance.

Farm boys, as a group, plan to enter occupations with probable lower income and prestige.

We found that more of the farm boys, as compared with small town or urban boys, plan to enter occupations with low prestige ratings—according to prestige rankings of occupations made by a national sample of U. S. adults. Manual, unskilled, semi-skilled and some clerical and sales jobs were included in this category. Of the farm boys, 43 percent said they planned to enter occupations that received low prestige ratings by the national sample. This was true for 39 percent of the small town and 28 percent of the urban boys. These occupations generally don't require considerable training.

Choices by farm and urban boys for occupations in the middle prestige range were fairly similar, 28 and 26 percent, respectively. Fewer, 19 percent, of the small town boys indicated they planned to enter occupations in the middle prestige range. The national sample included in this range such occupations as technicians, retail businessmen, teachers, druggists, farm owners and operators, farm managers and other business and sales managers.

High income and prestige occupations, as rated by the national adult sample, included lawyers, doctors, clergymen, accountants, school administrators, architects, veterinarians and all of the fields of engineering, science and mathematics which required at least a college education. About 19 percent of the farm boys, 30 percent of the small town boys and 46 percent of the urban boys reported plans to enter these occupations.

The farm and small town percentages don't add to 100 because 10 percent of the farm boys and 12 percent of the small town boys reported they hadn't decided what occupation they'd be most likely to enter. But all of the urban boys indicated an occupation which they'd thought about pretty seriously.

The accident death rate in agriculture as a whole is decreasing, except in the farm tractor category which is increasing. Nearly 20 percent of tractor accidents are occurring on highways.

Farm boys who said they don't plan to farm more frequently planned to enter low prestige occupations.

About 72 percent of the farm boys indicated they didn't plan to farm or were undecided about farming. Of these, 31 percent planned to enter the low income and prestige occupations, about 28 percent planned to enter middle range occupations, and 26

percent planned to enter high prestige occupations. Approximately 15 percent of the boys who didn't plan to farm hadn't yet made up their minds on what other occupations they might follow.

What Does It Mean?

Admittedly we're working with only a few pieces of the total picture. We have only the statements of the boys regarding their educational and occupational plans. We don't know if they'll carry out these plans. But the boy's ideas about these plans are still worth looking at. From the information from this one study, it looks as if farm boys, as a group, have to "come from behind and catch up" with the small town and urban boys in terms of job competition in urban settings.

Patience is a good thing to exercise but a bad thing to overwork.

Farm, small town and urban boys probably are no different when it comes to actual basic abilities. Our findings indicate that farm and small town boys receive about the same grades in school, and their intellectual abilities are probably similar. There's no convincing argument that urban children, as a group, are more intelligent than rural children. We also found no substantial difference in school activity participation. So, without evidence to the contrary, we may assume that farm, small town and urban children are pretty well matched.

But our findings indicate that the similarities end at about this point. On all of the remaining points on which we obtained information, farm boys and their parents came out less favorably than small town and urban boys and their parents. By "less favorably" we're speaking in terms of the realities of the educational and occupational competition which farm youths must face when they leave their farms and home communities.

Once we found that fewer of the parents of the farm boys had definitely encouraged the boys to plan for further education, it wasn't surprising to find that fewer farm boys planned to continue training beyond high school. This may be the reason also that considerably fewer farm boys planned to enter college—and that fewer of the boys who said they thought they'd enter college hadn't yet chosen their college or university.

When we found that fewer farm youths planned to take business or vocational training or to go to college, it also followed that

the occupations they expected to enter were lower on the prestige-income scale. This, too, may be partly because farm parents apparently discuss occupational plans with their sons less frequently than do small town and urban parents.

Look Again . . .

As farm-oriented people, we like to think of th virtues of farm life over city life. There are some—to us. It's often said that family living among rural families is superior to family living among urban families and that farm life generally is superior to city life. But, here, we're getting more and more into areas of values, viewpoints and judgments. These differ considerably among individuals.

Each way of life, farm and city, offers certain advantages and disadvantages, and we're free to rate and view them as we choose according to our values, viewpoints and judgements. Individuals, thus, rate and view advantages and disadvantages differently; an advantage to one may very well be considered a disadvantage by another.

The point is that many farm youths are and will be having to come to terms with the advantages and disadvantages of urban life. Those who will, through circumstances or choice, be working and living in an urban area need help in making intelligent job choices — and adequate counsel and training for these choices.

Farm youths and their parents are going to need to think carefully about these conditions. Once, a high school education or less was sufficient for successful farm operations or for seeking satisfactory nonfarm employment. In some cases it still is—when coupled with experience acquired over time. But it's becoming increasingly necessary to have training beyond high school both for getting started in and for carrying out successful farm operations and nonfarm employment.

We have plenty of unskilled and semiskilled workers. We need trained craftsmen, technicians, mechanics, salesmen and accountants, to mention a few—as well as social workers, teachers, engineers, scientists, mathematicians and doctors.

Cockle burrs in corn cob litter are harmful to birds of any age, but particularly young chicks. Chicks often choke trying to swallow the burrs.

It may be that small town and urban parents live and work in environments that place emphasis on preparing for occupations of one's choosing. Many of these parents left farm homes them-

selves and made the transition to nonfarm life and work.

Present farm parents, on the other hand, haven't gone through this farm-to-nonfarm transition and the resulting adjustment in their life and work patterns. They moved easily from the farm homes in which they were reared into the farm homes they established after marriage. But, now, many of their children are faced with the farm-to-nonfarm transition and the consequent adjustments. The parents, generally, haven't the background of experience in nonfarm job selection and necessary educational training that small town and urban parents have had. This makes it extra important for farm parents to recognize the value of *home and school* preparation of their children for their life's work.

A pessimist is one who expects nothing on a silver platter except tarnish.

Rural as well as urban society can prepare its youth to fill the ranks of needed occupations. But, on the basis of this one study, it looks as though young men from the small town and urban environments may currently have an edge over farm youths —both in their training-educational and occupational plans and in their *hopes* for them! But assuming roughly equal abilities—and there's no evidence to the contrary—this edge doesn't need to continue.

Closing The Gap . . .

Rural youths deserve an equal opportunity for competition with their small town and urban counterparts in terms of educational and occupational success. Some things already are helping to close the gap. School reorganizations and changes in course offerings and content are bringing rural and urban educational systems more into line. The 4-H programs are focusing more attention on career selection. The State Employment and Security Commission is helping to provide testing and educational guidance services in Iowa high schools.

The nation's lamb crop in 1959 was 2 per cent larger than in 1958.

But parents, too, have a role to play in shaping their children's occupational and educational plans. Remember that our results indicate that farm parents—especially fathers—are less active in encouraging their sons to plan past high school education than are urban and small town parents. And this seems to be reflected in the plans of their sons.

The Changing Livestock Farmer

Questions and answers from an implement dealers' magazine . . .

Condensed from
Implement & Tractor

C. B. Baker, Professor of Farm Management, University of Illinois

QUESTION: To start with, how have livestock producers altered their emphasis on types of meat production over the past 30 years?

ANSWER: In 1929 hogs were the largest source of livestock production in the United States, followed by cattle, farm chickens, sheep and lambs, and turkeys. Broiler production was negligible. By 1957 hogs had fallen behind cattle by a wide margin. Broilers were in third place, equalling more than one-fourth the live-weight production of hogs. Farm chickens had slipped to fourth place, followed closely by sheep and lambs and turkeys.

These changes came mainly from increases in production. Hog production in 1957 was about a fourth larger than in 1929, but cattle production more than doubled. Farm chicken production actually dropped to about 70 per cent of 1929 production. Sheep and lambs were reduced to about 83 per cent. Meanwhile, broilers developed into a major industry and turkey production increased to more than six times its 1929 volume.

The outward expression of these changes is seen perhaps most clearly in marked increases in specialized livestock production. In every part of Illinois, for example, figures show the per cent of farms reporting dairy cows and farms reporting hogs has declined, but for *remaining* dairy and hog farms, the number of animals per farm is increasing rapidly. The fate of the farm flock of laying hens and the development of large scale laying flocks has often been described. In short, livestock enterprises appear to be either expanded or abandoned.

Q.: Is this true of all types of livestock enterprise?

A.: No. Little change has been observed in the per cent of farms reporting cattle feeding. Indeed, for some areas, there appeared to be even some increase. Also, the

Reprinted by permission from Implement & Tractor, 1014 Wyandotte, Kansas City 5, Missouri

increase in cattle fed per farm reporting such an enterprise seems not to be so great as are the increases in hog and dairy enterprises. This cattle feeding situation is possibly not widely recognized as well as trends in other enterprises.

Q.: What will the livestock farmer of the future be like, and why?

A.: Most writers and speakers draw from the trends mentioned earlier to form a vivid image of the stockman of the future. He is a large-scale producer. His production units are highly mechanized and perhaps largely automated. Above all, his economies of production are such that he drives from the livestock industry all those who produce at modest scale and with older production methods. Analogies often are invoked by reference to the broiler and egg producers.

But for a more penetrating answer, let's examine the principles governing the selection and economic behavior of the livestock producer. We argue that they have been responsible for past trends and are indispensable in predicting the character of the future livestock producer.

Farmers always have been forced by competition to strive for a profit maximum. Any substantial failure has led weaker farmers to seek nonfarm opportunities — successfully in prosperous times and unsuccessfully otherwise. In the past 20 years we have witnessed a farm to nonfarm migration of historic magnitude.

Q.: Does this mean that we will see "the survival of the fittest," with only a sort of management superman remaining?

A.: No, because nonfarm opportunities attract the strong as well as the weak. Our hunch is that the remaining farmers have been and will be somewhere in the middle, varying widely in management skills. There also will be those whose advantages in farming are acquired partly by inheritance of farm assets.

Let's look at the factors that determine who will be our farmers. Some of the wilder predictions on the small number of

In these days of uncertainty, the only thing you can count on is your fingers.

farmers who will supply, for example, the nation's hog requirements, presume a level of management that is rare indeed. When such skill is found, it is rewarded highly in nonfarm as well as farm employment. Future technology promises to reduce still further the quantity of resources required to supply our food requirements. Consequently,

we expect a continued decline in farm incomes relative to nonfarm incomes. This is not the economic climate that favors retention of the gifted manager in farming.

Q.: Then what will prompt the weak farmers to leave agriculture?

A.: Competition for survival will become increasingly intense. The per cent of farm costs represented by cash outlays continues upward as nonfarm resources are substituted for farm-originated resources. And the fixed cash commitments for family living continue also to climb. Both factors reduce the "staying power" of the less adequate farmer. The main point is that tomorrow's farmers are being selected by non-farm factors as much as by farm factors. In any event, decisions made by the livestock producer will be closely regulated by requirements of economic principles.

You cannot expect to be a lucky dog if you spend all your time growling.

Q.: What are some of these basic economic principles?

A.: 1. Livestock enterprises perform several important economic functions on the farm. (a) They are *complementary* when furnishing plant nutrients for crop production. (b) They are *supplemental* when using resources that otherwise would find little use on the farm. (c) They are *competitive* when to increase their output would require such a diversion of resources as to reduce the output of some other enterprise.

2. The economic principle governing *resource allocation* among enterprises is a simple but powerful one. Enterprises that are complementary or supplemental are extended until their complementary or supplemental aspects are exhausted. Thereafter they are competitive. Each competitive enterprise is extended until the amount added to net income by the last unit of its product is equal to the amount added by the last unit of all other competitive enterprises. For example, if the addition of a steer in the feedlot adds more to net income than another cow in the dairy herd, the principle would suggest reducing the cow herd and expanding the cattle feeding enterprise.

Other important economic principles relate to the choice and combination of resources in enterprises. Some resources, like a tractor, are flexible in use. These resources create opportunities for supplemental enterprises. Family-supplied labor is an important resource that is non-

specific or flexible among enterprises, while resources, such as a milking parlor, are highly specific in use. Before the farmer will substitute a specific capital resource for a non-specific one, he must be persuaded that the loss in flexibility is more than offset by increased productivity. In the case of substitutes for labor, some of the loss in flexibility is offset by reduced work drudgery. If the producer's income is high enough, he may feel that he can afford it. This is especially true for the older farmer. But the limit is soon reached unless the substitution is profitable — especially for the young and climbing farmer.

Q.: This illustrates the principles well enough. Now will you apply them to livestock production? First, what has happened to supplemental livestock enterprises?

A.: Supplemental enterprises have been declining on the family-centered farm. The few milk cows and the farm flock of laying hens were supplemental in terms primarily of labor. On many farms where they have disappeared they still might yield a small added profit, but it is generally not felt to be worth the added drudgery. And if any diversion of resources is required from other enterprises, even the small profitability is questionable.

Q.: How about complementary enterprises?

A.: Complementarities important to livestock production have been changed by new fertilizer technologies and cropping practices. In place of livestock manure, substitutes are available from a combination of inorganic plant nutrients and carefully planned conservation of crop vegetation. The result has been to reduce the dependence of flat land farmers on rotations that once supported livestock and hence the complementarities of livestock enterprises.

Q.: Moving into the area of competitive characteristics, what happens, first, to dairying?

A.: Important economies in labor use are yielded by increasing the size of the dairy herd from 10 to 30 cows. Labor per unit of product continues to decline beyond this to 60 cows or more, but more slowly. About the same kind of relationship occurs in the use of capital. However, large capital investments for the new materials-handling and storing techniques are increasing the importance of reducing cost per unit of product by increasing herd size.

The size of your troubles generally depends on whether they are coming or going.

The popularity of dairying has declined on the family-centered farm even where it was a major enterprise. Other enterprises less demanding in labor are sought. And even where dairying is retained, the trend is toward herd size adequate to exploit economies in capital costs.

Q.: How does the hog raiser's situation compare with the dairyman's?

A.: In contrast with dairying, there seem to be fewer economies in labor use from increasing the size of hog enterprise. The important economies lie in the substitution of capital for labor and consequent economies in the use of capital from larger scale hog production. An economically interesting feature of new hog production techniques lies in the possibility of substituting capital for *management*. Should this kind of substitution prove successful, the size economies in capital use would be tremendous. Also, the skill requirements of labor would be reduced.

Doorstep to the temple of wisdom is knowledge of our ignorance.

Where confinement systems of hog production are adopted, the economy of the hog enterprise is changed radically. Supplemental characteristics are almost completely eliminated. Many costs previously small or variable with changes in output become large and fixed regardless of output. The producer so equipped will find it advantageous to produce a stable volume of hogs regardless of variation over a wide range of market conditions. Therefore, he will consider very carefully before committing himself to such a rigidity in his farm organization.

Q: You mentioned differences between cattle feeding and other livestock enterprises relative to trends toward specialization and size increases. Can you explain them?

A. I am reluctant to do more than guess. Per dollar invested in livestock, cattle feeding has a low requirement in labor. Therefore it does not present the work drudge characteristics of milk cows, chickens or hogs. Also, fairly substantial size can be attained with small outlays of non-livestock capital. Moreover, even though capital is limited, feeder cattle are easier to finance than are many other farm assets. Finally, most nutritional advances have favored small producers nearly as much as large producers.

The main "input" is the management of market uncertainties in cattle feeding. Day-to-day risks

at marketing time are tremendous for the ordinary farmer, even with a fairly small feeding operation. But the "ordinary farmer" is increasing rapidly in total size. Therefore, may it not be possible that the cattle feeding enterprise is filling a sort of "supplemental" function on farms highly capitalized for other major enterprises?

As a competitive enterprise, cattle feeding provides important economies in labor use from expanding its size. It takes little more labor to feed 100 steers than to feed 50. Opportunities to substitute capital for labor are not very important until the enterprise has been extended to a large size. Then capital substitution is likely to be massive — and risky. The highly mechanized cattle feeder must be able to compete with the "small" feeder whose resources are more flexible and less costly.

Q.: What about poultry?

A: Broilers and turkeys bear important economic resemblance to the cattle feeding enterprise with regard to labor economies from size increases. However, labor is a far more important input for poultry than for cattle feeding enterprises, where both are non-mechanized. Egg production, on the other hand, is more like the hog enterprise. In farm flocks, labor requirements increase nearly proportionately with size increase. In both cases, there has been a strong incentive first to substitute capital for labor. Then the economies from increasing size have enabled large commercial enterprises to produce at prices that make the small supplemental enterprises unattractive.

We might note here that as with hog and cattle feeding enterprises that specialize, mechanize and grow, many of the capital items are highly specific in use. Hence the producer will consider well the possible consequences of rigidifying his farm organization. In poultry, he is not likely to do so without a well-defined market outlet for his product.

Worry takes up just as much time as work, but work pays better dividends.

Q.: What will the dominant needs of the livestock farmer be, particularly as they apply to this industry?

A.: Stockmen who are large scale, specialized and mechanized will supply an increasing proportion of the nation's livestock output. They will exhibit more and more the economic behavior of small- to moderate-scale manufacturing firms. They will be

price conscious in purchases, like all farmers, but also diligent in search of reliable advice on engineering and nutritional problems relating to materials handling, storage and feeding. They will be interested in an economical source of advice, but aware of the value of accurate and dependable service in problems of design, often unique to individual farm situations. Indeed, these will be central problems for the producers who expand to really large-scale production.

Q.: Do you see any significant barriers toward achieving the mechanization and automation of materials handling?

A.: Much of the equipment to store and move materials for livestock is not mobile. Once acquired, it becomes part of the real property of the farm. Where land is expensive, operators frequently find it economic to let someone else own the land. Their own resources are thus freed for machinery and operating expenses. But leasing arrangements are not always well-adapted to nonland real estate. New forms of finance will be sought. We expect increasing interest in partnership and corporate forms of finance. New experiments are expected in contracts and various forms of "integration." Machinery dealers will be tempted and perhaps forced to extend additional finance service with sales.

However, not all stockmen are going to be so large and specialized. Just how varied will be the "profile of the livestock producer" depends, in the final analysis, as much on factors outside agriculture as on factors inside agriculture. It is likely, however, that the range of variation will be actually increased instead of decreased as we enter an era of really large-scale livestock production while accommodating still the more usual size and diversity of farms.

Cotton often is called White Gold. It can be spun so fine that a pound of thread will extend more than 150 miles. It can be spun so closely that it is windproof. It will absorb 14 times its weight in water. It is one of the very few fibers which has a greater wet strength than dry strength.

Penicillin will not be transmitted to a cow's milk when the animal is fed 88.9 milligrams of procaine penicillin daily, the recommended level for bloat control, recent research at New Mexico State University shows. Appreciable amounts of the antibiotic were transmitted to milk when higher amounts were fed the cow.

Oats: Should They Be Grain or Silage?

Earlier harvest may mean higher profit. .

Condensed from
Nebraska Experiment Station Quarterly

John W. Schmidt

OATS occupy many acres of land each year and are popular in rotations and as a companion crop with alfalfa and sweetclover. When harvested as a grain crop, oats are one of our lower value crops.

Harvesting of the oat crop as silage might increase the value of the crop to the farmer. In addition, the early removal of the oat companion crop is beneficial to new legume or grass seedings.

When oats are to be harvested for silage it is important to know the feeding value of the silage and the best stage of maturity for harvest in order to obtain the largest production of feed per acre. Research has shown that feeding value and total production may not be related.

Considerable evidence indicates that oats harvested for silage at the flowering stage are the most nutritive, largely because of a higher protein content and greater digestibility. Total production, however, may be the greatest at the soft dough stage. This stage, in addition, provides available carbohydrates for better fermentation and preservation.

Good silage can be made at any stage, provided it is (1) ensiled at the right moisture content, (2) well-packed, and (3) supplied with adequate carbohydrate source or a preservative. Ordinarily, oats cut at the soft dough stage contain ample carbohydrates and will not require a preservative.

Experiments have been conducted at Lincoln by the Nebraska Experiment Station to determine potential silage yield of early, mid-season, and late-maturing oat varieties when harvested at different stages of development in relation to their grain yield. Nemaha was the early variety, Burnett and Mo. 0-205 were the mid-season varieties, while Jackson and Sauk were the late varieties. Silage yield potential was mea-

Reprinted from Nebraska Experiment Station Quarterly, College of Agriculture, Lincoln 3, Neb.

sured by determining oven-dry weights and then converting to a 70 per cent moisture basis. Grain yields were taken at the combine-ripe stage or at about 13 per cent moisture.

Silage Potentials

Varietal and/or maturity differences in silage yield potential were observed for the average of the 3-year period, 1956-58. These 3-year averages are shown on the next page.

The later maturing and generally taller varieties appear to have greater silage yield potential at the earlier developmental stages. When cut at the soft dough stage, the better adapted varieties may lose leaves rapidly due to leaf rust or to high temperatures with a corresponding drop in silage yield potential. Leaf weight has reached its maximum by flowering time and the stem weight maximum is reached soon thereafter. The tonnage gained in the stages after flowering is almost entirely due to grain formation.

Veterinarians say fowl pox and Newcastle disease are poultry diseases for which reasonably safe and effective vaccines are available. Vaccination should be completed at least three weeks before young flocks begin to lay.

Nutritive Value

Crude protein percentages and pounds per acre were determined in 1958 for aiding in estimating the nutritive value of the crop at the various developmental stages. For Mo. 0-205 these were on a dry-weight basis: flowering, 12.9% and 536 lbs./acre; early milk, 11.9% and 647 lbs./acre; milk, 11.1% and 704 lbs./acre; soft dough, 10.4% and 715 lbs./acre; grain only, 16.2% and 423 lbs./acre. Crude protein content is very high in the leaves at the flowering stage and decreases thereafter, while crude protein content of the grain portion increases with maturity.

Value of Silage Versus Grain

The value of the oat crop when harvested for silage may be compared with corresponding grain production on the basis of pounds of dry weight or feed units produced per acre.

Oat fodder at 70% moisture contains 600 pounds of dry matter or the equivalent of dry matter in 21.6 bushels of grain at 13% moisture. Therefore, 3 tons of silage would yield the same amount of dry matter as 65 bushels of grain, 6 tons would equal 130 bushels, and 9 tons would equal 195 bushel in dry matter. However, the dry matter in each

ESTIMATED SILAGE YIELD, 3-YEAR AVERAGE

Maturity group	Estimated tons of silage (70% moisture basis)		Grain yield Bu./acre
	Milk Stage	Soft dough stage	
Early			
Nemaha	7.0	7.8	54
Midseason			
Burnett	7.5	8.3	65
M. 0-205	7.6	8.3	66
Late			
Jackson	7.3	7.6	49
Sauk	8.3	7.4	63

In 1958, the oats were harvested at four different stages from flowering to the soft dough stage. These yields were as follows:

Maturity group	Estimated tons of silage (70% moisture basis)				Grain yield Bu./acre
	Flowering stage	Early milk stage	Milk stage	Soft dough stage	
Early					
Nemaha	6.9	8.6	10.1	11.7	72
Midseason					
Burnett	7.0	9.8	10.8	12.4	92
M. 0-205	6.9	9.1	10.6	11.5	94
Late					
Jackson	7.3	9.7	10.5	10.7	75
Sauk	7.7	10.7	11.6	10.8	93

Moisture contents of the fodder at these stages were 76, 70, 66 and 58%, respectively.

of these is not equal in feed value.

Actual feeding data are not available for the fodder and grain harvested but some estimate of the value of the dry matter in each can be made from data found in Morrison's *Feeds and Feeding*. Approximate average TDN percentages for 13% moisture oats grain were calculated as 68 and for 70% moisture fodder at 16. Then one ton of fodder and 15 bushels of grain would produce approximately the same pounds of TDN. Stating this another way, the 3-year average fodder yield of 8 tons at the soft dough stage at harvest could have had a feeding value of nearly twice the average 60-bushel-per-acre grain yield. Actual value would depend on what class of livestock was being fed and on how well the silage kept. The value of harvesting oats as silage was further demonstrated in 1957

when Jackson yielded only 40 bushels of grain due to heavy leaf rust but a silage yield of 8½ tons was indicated.

Estimating Silage Tonnage

Silage tonnage may be estimated at the soft dough stage if yields can be gauged. As a rule of thumb, oat yields per acre can be converted to tons of silage per acre by dividing estimated bushel yield by 8 when yields range from 30 to 60 bushels per acre and by 9 when yields are in excess of 60 bushels.

When To Harvest

The choice of harvesting date depends on the needs of the farmer. If the nutritive value of the silage is of most importance, then the flowering stage may be preferred. If tonnage takes precedence, then the soft dough stage is best. However, oats pass through the desired stages very rapidly and harvest should begin slightly ahead of the optimum date chosen. If large acreages are to be harvested for silage, it may be well to seed two varieties of different maturities or seed the same variety at two different dates. In either case, it is important that adapted and recommended varieties be used.

New seeding of legumes and grasses are benefited by early harvest of the oat companion crop. Oats harvested at the flowering to early milk stage will have about the proper moisture content but may need a preservative (60-70 pounds of molasses or 6-8 pounds of sodium metabisulfite per ton of forage). Those harvested at the late milk to soft dough stage generally do not need a preservative but they may be low in moisture and require greater packing.

An oat crop put up as silage will provide a feed source whenever needed. This may be especially valuable during the summer months before corn and sorghums silage is available. In addition, oats can be expected to produce considerably greater amounts of feed units per acre when harvested as silage than when harvested as grain. Certainly, in instances such as excessive lodging while the crop is still green or when rust is heavy, harvesting the oat crop as silage is indicated.

During a life of 70 years, we spend 20 years working, 20 years sleeping, 7 years playing outdoor games, walking or sitting; 7 years at the movies, 5 years dressing and shaving, 3 years waiting for each other, 2½ years eating and some 2 years smoking — and about a year talking on the phone.

When You Should Irrigate

Follow these suggestions to answer this question . . .

Condensed from The Wyoming Stockman-Farmer

Mike McNamee, University of Wyoming

HOW much irrigation water is needed to produce maximum yields? How often should I irrigate my crops?

These are questions irrigators have been asking for many years. To get maximum production of top quality products, they need to know the answers.

Too often, irrigation is left strictly to chance. Many times this is unavoidable. The irrigator who has only seasonal water must use it when it's available or lose it. Many irrigation districts deliver water on a set schedule. You get water only when your turn comes around. Under these situations, the irrigator has little choice about when to irrigate and often he's out of water when he needs it the most.

On the other hand, the irrigator who has a dependable water supply can do a better job of irrigating when he knows how much to apply and when to do it. Most crops have certain critical periods of growth when they need to be irrigated to produce top yields. There are also periods when an irrigation will actually reduce production.

To do the right job of irrigating, the irrigator should first know something about how plants use water. It has been found that regardless of how deep a plant sends its roots, the top half of the root zone will take up about 70% of the moisture the plant uses.

It has also been found that the drier the soil becomes, the harder it is for a plant to get moisture from it. It is generally recommended that for most crops, the moisture extraction from the top quarter of the root zone should not exceed 75% of the moisture available to the plants. From the practical viewpoint, irrigation should probably start when the moisture extraction reaches 50%.

Table I shows the root zone depths of mature plants of the common crops grown in Wyo-

Reprinted by permission from
The Wyoming Stockman-Farmer, 110 East Seventeenth Street, Cheyenne, Wyoming

ming. Naturally, the stage of maturity of the plants will have some effect on the depth of the roots. A seedling plant will not have the root development of a mature one, but the entire mature root zone should be kept moist to encourage proper root growth.

When Do Crops Need Water?

How can the irrigator tell when a crop needs water and when it doesn't? One way is to watch for signs of wilting, but too often the plant is already starting to suffer when even temporary wilting appears. The best way is to measure the amount of moisture in the soil where the root zone is most active.

There are several methods of measuring soil moisture that are reasonably accurate and convenient to use. Table II describes the "feel" method of determining the readily available moisture in the soil. Some degree of accuracy can be achieved with the "feel" method as the irrigator becomes experienced with the technique. Care must be taken to secure soil samples at a depth corresponding to the root development of the crop.

A variety of instruments has now been developed to measure the availablility of water in soils, irrespective of the soil type. These instruments can be grouped into two general classifications — the tensiometer type and the electrical resistance type. Both will be more accurate than the "feel" method.

The tensiometer type instruments consist mainly of a porous cup, a connecting tube and a vacuum gauge. The tubes are filled with water and sealed. The instrument is placed in the soil with the porous cup at the level to be sampled. As the soil dries out the film of water surrounding each soil particle becomes thinner and

The hand that lifts the cup that cheers, should not attempt to shift the gears.

is held more tightly to the soil particle. The tension thus produced causes water to be drawn from the porous cup.

Creates Partial Vacuum

As the water moves from the instrument to the soil, a partial vacuum is created and this is indicated on the gauge. The irrigator can tell by glancing at the gauge when the soil is getting too dry for proper plant growth.

The reverse is also true. When water is applied to the soil it will be pulled back into the instrument reducing the vacuum and lowering the reading on the gauge.

By placing these instruments at proper depths and locations in the field, the irrigator can tell at

a glance when he needs to irrigate.

The electrical resistance instruments consist of an electrical resistance meter and moisture-sensitive elements. The elements consist of two wire electrodes imbedded in a moisture absorbant material such as plaster of Paris or nylon.

The elements, when buried in the soil, become, essentially, a part of the soil and respond readily to changes in soil moisture. As the moisture content of the element changes, so does the resistance between the electrodes. The resistance value can then be converted to percent moisture in the soil.

The electrical resistance instruments can be calibrated to give very accurate measurement of readily available moisture. The principal objection to them is that the irrigator must have the meter with him before he can check soil moisture.

A bad habit cannot be tossed out the window; it must be coaxed down the stairs a step at a time.

There are several soil moisture measuring instruments on the market today. They are offered at a rather wide price range. The degree of accuracy may vary between different units but all will take some of the guesswork out of irrigating.

Will They Pay?

The question which probably comes to mind now is, "Will one of these instruments pay for itself on my farm?" It all depends on your conditions.

Exact irrigation has many benefits which can result in substantial savings: First, less water may be used; second, the quality of the crop may be increased because the water is applied at the right time—the plant at no time suffers from too little or too much irrigation; third, the yield of crops may be increased; fourth, pumping or power costs may be reduced if less water is used; fifth, labor costs may be reduced if the number of applications can be reduced; sixth, leaching of soil nutrients can be reduced and the soil made more responsive to fertilizers; seventh, the benefits of rains can be properly utilized and evaluated. Finally, it is possible to check the efficiency of sprinkler irrigation patterns.

Obviously, you may not be able to take advantage of all these benefits because of water supply problems. You might also find that you are already doing as good a job of irrigating as possible. A majority of the irrigators will find, however, that they can pay for the instruments in one or

two seasons by cutting labor and water costs and increasing production.

Are you sure you are getting the most from your irrigation water?

TABLE I. ROOT DEPTHS OF COMMON CROPS

Crop	Root Zone Depth (ft)	Depth of principle Moisture Extraction (ft)
Alfalfa	5	3
Beans	3	2
Beets	4	2
Corn	4	2
Grass	3	2
Potatoes	3	2
Sm Grain	3	2
Sorghum	4	2
Sweetclover	5	3

TABLE II. TEXTURE GUIDE FOR READILY AVAILABLE MOISTURE

Amount of available moisture remaining in soil	Loamy sands and sandy loams (light)	Very fine sandy loam and silt loams (medium)	Silty clay loams and clay loams (heavy)
0	Dry, loose, flow through fingers	Powdery, sometimes slightly crusted but easily broken down into powdery condition	Hard, baked, cracked; difficult to break down into powdery condition
½ or less	Appears to be dry, will not form a ball with pressure	Somewhat crumbly but will hold together from pressure	Somewhat pliable, will ball under pressure
½ to ¾	Tends to ball under pressure but seldom will hold together when bounced in the hand	Forms a ball, somewhat plastic, will slick slightly with pressure	Forms a ball, will ribbon out between thumb and forefinger, has a slick feeling
¾ to full capacity	Forms a weak ball, breaks easily when bounced in the hand, will not slick	Forms a ball, very pliable, slicks readily	Easily ribbons out between thumb and forefinger, has a slick feeling
100 percent	Upon squeezing no free water appears but wet outline of ball is left on the hand.		

A THOUGHT A DAY

TO KEEP THE PSYCHOANALYST AWAY

From the Collection of Everett Smith

Sometimes a woman's promise to be on time carries a lot of *wait.*

★ ★ ★

The reason some people get lost in thought is that it is such unfamiliar territory.

★ ★ ★

A fool and his money are soon invited places.

★ ★ ★

In these days of uncertainty, the only thing you can count on is your fingers.

★ ★ ★

You cannot expect to be a lucky dog if you spend all your time growling.

★ ★ ★

What good is muscle if we lack will? If you lack hustle, what good is skill?

★ ★ ★

Figure it out for yourself, my lad. You have all the greatest men have had — two arms, two hands, two legs, two eyes, and a brain to use if you would be wise. With this equipment they all began, so start for the top, and say, "I can".

If all the cars in the United States were lined bumper to bumper on a long hill, some fool would try to pass them.

★ ★ ★

Thinking well is wise; planning well is wiser; and doing well is wisest of all.

★ ★ ★

The doorstep to the temple of wisdom is knowledge of our ignorance.

★ ★ ★

Worry takes up just as much time as work, but work pays better dividends.

★ ★ ★

Kindness is one language the dumb can speak and the deaf hear.

★ ★ ★

If you're too busy to pray, you're too busy.

★ ★ ★

Every man must do his own growing — no matter who his grandfather was.

★ ★ ★

Responsibility is like a string of which you can see only the middle. Both ends are out of sight.

When you can't remove an obstacle, plow around it.

Nothing sets a person so much out of devil's reach as humility.

★ ★ ★

Being liberal is not giving much, but giving wisely.

★ ★ ★

Individuality is the salt of common life. You may have to live in a crowd, but you do not have to live like it, nor subsist on its food.

★ ★ ★

Whatever you do, do wisely, and think of the consequences.

★ ★ ★

The difference between intelligence and an education is this — intelligence will make you a good living. *Chas. F. Kettering*

★ ★ ★

Silence and reserve suggest latent power. What some men think has more effect than what others say.

★ ★ ★

Whether you be man or woman you will never do anything in this world without courage.

★ ★ ★

Men still die with their boots on. Usually one boot is on the accelerator.

★ ★ ★

Fifty years ago people never thought of doing the things they do today. That's why they didn't do them.

Always start with a thought that your critics may be right.

★ ★ ★

It's the little things that annoy us — we can sit on a mountain but not on a tack.

★ ★ ★

A bad habit cannot be tossed out the window; it must be coaxed down the stairs a step at a time.

★ ★ ★

Be careful how you live. You may be the only Bible some people ever read.

★ ★ ★

The difficulties and struggles of today are but the price we must pay for the accomplishments of tomorrow.

★ ★ ★

Be not afraid of life. Believe that life is worth living, and your belief will help create the fact.

William James

★ ★ ★

No man is free who is not master of himself.

★ ★ ★

The diamond cannot be polished without friction, nor the man perfected without trial.

★ ★ ★

To love and win is the best thing; to love and lose the next best. *Wm. Thackery.*

★ ★ ★

Be slow in choosing a friend, slower in changing one.

Care And Development Of Calves

Good beef and good profits start with good calves . . .

Condensed from The Polled Hereford World
Melvin Long, Manager,
Cabellsdale Farm, Rt. 3,
Jackson, Mississippi

THE development of a calf begins long before the calf is born.

The manner in which the cow is taken care of during pregnancy plays an important part in the later development of the offspring. The season of the year in which the cow is bred, we think, will determine the care of the cow during pregnancy. Except under abnormal conditions, during the summer months, cows that run on a good improved summer pasture need no supplementation other than a good mineral supplement. Planning and planting a good winter pasture before winter sets in is essential to the care and maintenance of the brood cow. We have found that by starting our winter feeding program in sufficient time, we are able to carry our cows through the winter months more economically and in better condition than if we waited until our summer pasture is completely gone. We feel like the main problem people have in the winter months is letting the cows get too thin before they start feeding.

A good winter pasture, a good protein supplement, and plenty of good hay will carry your cows through the winter months in good condition. In addition to the things mentioned above, a disease and parasite p r o g r a m should be followed. These things will play an important part in the development of the calf while his mother is still carrying him.

We like to run our cattle in three separate pastures — cows that are carrying an early breeding date in one pasture, in another pasture cows that are springing heavy, and in still another pasture we run our young heifers or what one might call the replacement heifers. We try to keep our heavy springers in a pasture that is near the farm headquarters where they can be

Reprinted by permission from The Polled Hereford World, 720 Delaware Street, Kansas City 5, Missouri

seen and checked two or three times a day. We try to pick a pasture that is clean and drains well — one that is free of ditches, creeks, gullies, branches, etc., that might hinder a cow in calving. We feel that by doing these things we can get a higher percentage calf crop each year. Also we like to check the dry cow pasture twice a day. We run our replacement heifers in a separate pasture so they can be fed a good ration until they are ready to breed. We believe that taking good care of a heifer while she is young will help her in developing into a better brood cow. We like to breed our young heifers between eighteen and twenty months of age. A few months earlier might run the risk of losing the heifer and calf too. Also by keeping our cattle in three groups, it is easier for us to keep our records correct.

The shrew has a body temperature of 108 degrees, the highest of any mammal.

As the calves are born, we tattoo each calf and put it on its mother's production record. As the calves get old enough to start eating, they are put on a creep feed in the pasture with their mothers. In replacing the creep feeder we try to locate it near shade and water; also a good place is where the cows rest during the day.

We like to leave the calves we pick for future show calves or replacement heifers in the pasture with their mothers the first few months of their lives, provided the mother cow is giving a good amount of milk and the weather conditions are good. We think the the calf will do better in the pasture the way nature intended the first months of its life.

A few of the more important factors we use in selecting our show calves and replacement heifers are good heads, straight legs, straightness of lines, thickness, depth of body, and ample amount of bone. We feel that these combined factors will make a top show prospect or replacement for your herd.

As the calves are brought to the fitting barn they are put on nurse cows. One way that has worked successfully for us to get the calves to nurse is to put the calf's mother in a stanchion next to the nurse cow. Let the calf start nursing its mother and very easily move it over to the nurse cow. I might mention that handling the calf roughly and trying to force it to nurse is just wasting time. I also might mention that for show calves to be exhibited in state and national shows in my opinion there is nothing that will

take the place of the nurse cow. In addition, at this time the calves are put on a balanced ration made up of oats, bran, corn, barley, beet pulp, and a good protein supplement. Fresh clean water and a good quality of hay are available to the calves at all times.

In stalling these calves we like to keep them in a large lot with shade and shelter. This way the calves have a choice of being inside or out.

The next task is to get the calves tame and gentled down. I have never seen a calf that is scared and nervous do good. A few days of brushing and combing the calves will help gentle them down. Leading the calves to and from the nurse barn will help train the calf to lead and also gentle it. We like to make it a daily chore to do all we can to get the calves used to us. We think that the best way is to comb and brush the calves every day even though you may think they don't need it. It will pay off in the long run.

Another thing of utmost importance is the sanitation of the lots and paddocks in which the calves have to stay. We also think one should make it a daily chore to clean these lots, stalls, or paddocks at least twice a day.

As the next few months pass we like to separate our bull calves and heifers into separate lots because of taking a chance of getting a heifer bred too young. Also young heifers in heat will keep the bull calves upset and cause them to start scouring and go off feed. Also I might mention that corralling and working your older cattle should be done a good distance away, thus avoiding upsetting your show cattle.

The next few months of the calves' lives are pretty much routine, such as keeping the calves on feed, and seeing that they are still getting all the milk they can take. I might mention here the importance of feeding and nursing as close to the same time each day as possible. This way the calves get in a routine and they know what you want them to do.

The soil, like freedom, is not appreciated until it is endangered.

As the weather gets hot we try to select what we think are the best calves we have to fit the show classifications such as senior calf, winter calf, junior calf. We then move these calves to the main fitting barn and put them in stalls, alongside our yearling cattle. We try to keep the calves as cool as possible, for here in our section of the country the

climate is one of our problems in getting the cattle fat.

From here on out the calves we selected for show calves are handled the same way as the yearling cattle, except for nursing. We like to nurse the calves as long as they are eating their grain good, or until they are a year old. With few exceptions we usually wean all the calves after they have reached a year old. One of the exceptions might be that we were on the show circuit at the time.

A couple of months before show circuit time we start devoting more time to the working of the hair on the show cattle. We try to wash the show cattle at least once each week, and keep them as clean as possible. We use sand in our stalls because we believe it is cooler and easier to clean. Also we realize there are some disadvantages such as getting in between the cattles' toes and in their hair, but we think the greatest advantage is the coolness it gives.

If the calves that were started on feed have done good, and they have a good coat of hair, you will be rewarded when they enter the show ring. A man that taught and helped me a lot always said to use every day as if it were show day. The greatest thrill that can come to an owner is when something he bred and rised is made Grand Champion at the shows.

Farm animals keep up a running line of talk to the husbandman who can understand them, according to Dr. E. J. Frick. It's sign language, he explains, but it tells what the brutes want and how they feel. Every movement conveys a message of well-being, of distress, or disease. Many good stockmen know dull eyes. sluggishness, disinterest, rough coat, poor appetite, abnormal droppings spell trouble. In the positive side stretching, yawning, frisking, or a sharp curiosity in what goes on are good omens and tell a stockman all is well in the barnyard.

—*Tractor Farming*

When you feel that being persistent is a difficult task, think of the bee. A red clover blossom contains less than one eighth of a grain of honey. A bee, flitting here and there for sweetness, must visit 56,000 clover heads for a pound of honey; and there are about sixty flower tubes to each clover head. When a bee performs that operation 60 times 56,000, or 3,360,000 times, it secures enough sweetness for only one pound of honey! —*Sunshine Magazine*

42 Tips To Keep Your Animals Healthy and Gaining

A roundup of tips from veterinarians . . .

Condensed from The Farmer

"BASICALLY, animal health is tied to animal comfort," says Dr. Darrell Trump, Owatonna, Minn., veterinarian with more than 40 years of experience. "Most dairymen, for example, crowd their calves. This leads to disorders and eventually disease because of the stress put on them. Little management practices are important."

Interviews are presented here with 18 Upper Midwest veterinarians, based on this one question: "What can farmers do during coming months to keep animals healthy, keep costs down and gains up, and get the greatest return per dollar spent?" Here are answers from those veterinarians:

"Keep cattle out of drafts during chilly spring days," says Dr. Trump. "Add barriers to loose-housing sheds. Build enclosed calving and isolation pens into sheds to take better care of fresh or sick cows."

Call Early to Save Calf

On another subject, important right now, Dr. H. W. Kinne, Jamestown, N. Dak., says this: "If a cow doesn't calve within two hours after she begins labor, get help. Check cows at least twice a day when calves are expected. I've delivered four dead calves the past four days," he continued. "One beef, one dairy and a pair of dairy twins—all from heifers. Each of these calves could have been saved, had I been called soon enough.

"Day-old calves are selling for $25 to $30 at local sales barns, which means these three farmers lost at least $100 between them that they could have pocketed—and they still had to pay a fee. Another man apologized for calling me at night, but I'd rather assist in an easy delivery of a live

Reprinted by permission from The Farmer, 55 East 10th Street, St. Paul 1, Minnesota

calf at night than a hard delivery of a dead calf the next morning —or a day later. Also, let heifers get big enough before they're bred. Then there won't be so many delivery problems."

Drs. W. M. Peden and K. W. Johnson, Milbank, S. Dak., stress the same point. Call your veterinarian if a cow has extended labor. Early or late, you'll have a vet bill, and an early call might save the calf—returning you more than enough to pay the veterinarian bill. "A first-calf heifer should receive special attention if she hasn't delivered after six hours of labor," is their recommendation. "With aged cows, suspect trouble if the calf isn't born within three hours after the first sign of labor."

Continuing on cow-calf problems, Dr. R. B. Helming, Cresco, Iowa, says, "Preparation for calving should include a good diet to help prevent ketosis. Cows are under severe stress after calving and a good diet ahead of time can help prepare them for this. In some cases, extra cobalt before calving helps. A good mineral mixture is always a good investment. In other cases, extra energy from molasses helps prevent ketosis."

Three Points For Ketosis

Ketosis usually shows up 14 to 28 days after calving, according to a report from the American Foundation for Animal Health, which makes the following prevention recommendations: Don't make radical changes in feeding just before calving. After calving, bring cows to maximum grain feeding as soon as possible. If animals drop off sharply in production, or "go down," call a veterinarian immediately. Injections may cause the cow to show signs of recovery within a few hours, and she may be back in normal production after a few days.

"Milk fever can also be partially prevented," says Dr. Helming. "Here again, a good mineral mixture can help make up for a calcium drain on the system. Extra vitamin D before calving stops many cases of milk fever. Never milk a fresh cow out completely the first few days after calving, as this intensifies the milk fever problem. If a cow does go down, injections can put her on her feet within a few minutes, if given in time."

An engagement ring has been defined as a one-man band.

"Dairymen have opportunities to eliminate mastitis by following certain basic rules," says Dr. H. L. Dinesen, Mankato, Minn. "Teat cups, for example, should

be dipped in disinfectant between changing from one cow to another to prevent spreading of mastitis."

"Cull chronic mastitis cases," adds Dr. Helming. "Cows that have shown signs of mastitis three different times are likely to be chronic cases and are a constant source of mastitis danger."

"Cows exhaust their supply of vitamin A in the spring, and this leads to breeding problems, eye troubles and other deficiency symptoms. Calves may be born deficient in vitamin A," adds Dr. Trump. "Good leafy hay is the answer to this problem, or poorer hay can be supplemented with vitamin preparations."

About 85 per cent of all food items and most other agricultural products are processed in some way.

Drouth May Cause Shortage

"Feed from drouth areas is particularly short on vitamins and minerals," warns Dr. Peden. "Not only do vitamin or mineral deficiencies cause problems, but other problems flare up when animals get into a run-down condition. On the other hand, short feed supplies can be stretched with proper vitamin and mineral supplementation," adds Dr. K. W. Johnson, Milbank, S. Dak.

Keeping dairy calves in individual pens or stalls makes for healthier, better-doing calves, say Drs. R. S. Kufrin and D. W. Johnson, partners in Benson, Minn. Calves in separate pens get more individual attention, and are easier to keep clean. There's no sucking problem, which can lead to navel infections and injured udders.

"A good sow, like a good cow, needs plenty of water to give milk," warns Dr. Trump. "And she won't drink enough water after farrowing unless she's used to drinking clean, fresh water before farrowing. Waterers in individual pens can help prevent milking problems in sows."

"Many problems at farrowing could be eliminated by proper care of the sow during gestation," says Dr. J. F. Larson, Breckenridge, Minn. "Make sure gestation rations have at least 15% protein, and adequate vitamins and minerals. Put sows in pens three to four days before farrowing and include some laxative feed—such as wheat bran—in the ration."

"Vaccination is still important," says Dr. E. S. Hobert, Blue Earth, Minn. Other veterinarians agree. Hog cholera, still the number one swine killer, broke out in several states last year as farmers let down on vaccination. The Animal Health Institute reports

only about a third of the nation's hogs were vaccinated for cholera in 1959.

"Vaccination works best if done early—before animals get sick," says Dr. Hobert. "When they're healthy, they can take vaccination easily. But once sick, it is sometimes too late to vaccinate and save other animals in the herd from a contagious disease."

"Shear ewes prior to lambing," suggests Dr. D. W. Palleson, Sisseton, S. Dak. "Pregnancy disease is rarely, if ever, a problem among ewes that were sheared several weeks before lambing. Cold weather doesn't bother if ewes have access to shelter, and shearing bulky wool gives them more 'elbow room' in barns and pens."

"Get castration, docking and dehorning done early," says Dr. D. A. Wire, Valley City, N. Dak. "When animals are young, they can take these treatments without much shock. Castrating animals early also prevents them from becoming staggy. It's especially important to get these jobs done before fly and maggot season."

"Over-all sanitation is important," adds Dr. Hobert. "Keep pens clean. Disinfect calf pens, especially before a new bunch is put in."

A few hogmen, especially alert to good practices, have installed disinfectant troughs at the entrance to farrowing houses, say Drs. J. S. McCallum and A. P. Antroinen, Ortonville, Minn. Farmers and visitors can then disinfect shoes as they enter and leave buildings, which helps prevent disease spread.

"Draining and leveling feedlots would stop many cases of foot rot," says Dr. W. F. Green, Olivia, Minn. "Hard-to-walk-in lots can cause foot injury and lead to foot rot."

Dr. Wire agrees. "Foot rot can start with any irritation, including dried mud packed between hooves. And if foot rot isn't treated early, the affected animal may suffer extreme weight loss, and sometimes even die. Muddy areas around dugouts and tanks are a source of foot rot trouble all summer long."

"Livestock should be hauled in a covered, enclosed truck," says Dr. Dinesen. "Open trucks with no protection causes stress, and this may lead to sickness. If such animals are put with others on the farm, all may get sick."

"Keep new stock isolated, and supply them with their own private tank and trough," says Dr.

An ordinary needle, carefully laid on a pan or glass of water, will float, even though its density is 8 times that of water.

McCallum. "It does little good to isolate a new group of animals if they drink from the same tank as stock already on the farm," adds Dr. Antroinen.

"Feeding hay before turning cattle onto wet or lush legume pasture is still a sound idea to help prevent bloat," says Dr. Wire. "If bloat does occur, walk the bloated animal. If rapid bloat occurs, use a trocar to release gas pressure." Vets agree that a trocar should be a part of every cattleman's kit.

Agricultural exports were up 12 per cent in the first half of fiscal 1960 from the same period a year ago.

"To prevent losses to livestock —and danger to human life— vaccinate all farm pets against rabies," suggest several veterinarians. "Farm pets often come in contact with wild animals which may carry the disease, and vaccination is an important preventive measure."

Here's a tip from Dr. R. W. Rieke, Fairmont, Minn., that all veterinarians agree on. "Stop in and ask your local veterinarian's advice on animal problems. Many problems don't require a call—or a fee—just a little sound advice. A conscientious veterinarian is glad to give management advice, and answer current problems. If we don't know the answer, we'll try to get in contact with someone who does.

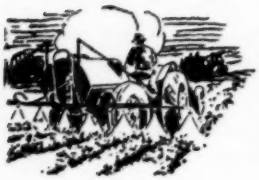
"It's important to get animal health problems answered quickly, since early diagnosis is necessary to stop weight and death losses. And don't let home remedies or 'quack' advice delay your getting a correct diagnosis."

Drs. L. G. Best and R. E. Meisner, Wahpeton, N. Dak., agree "Penicillin, for example, properly used is a valuable drug. But it has limitations, and won't cure everything. In many cases, use of penicillin as a home treatment without proper diagnosis gives trouble too much of a head start to save a sick animal, once we are called."

Other veterinarians agree. "Expensive animals can't be risked with home experimentation," says Dr. Dinesen. "Urging farmers to call us in time isn't just a 'gimmick' to drum up more business. If we get a call in time, we may save a client a lot of money," points out Dr. Rieke. "Whether the animal lives or dies, he still must pay a vet fee—and we'd much rather get there in time to make sure it lives."

A modern supermarket stocks an average of 4,000 items.

Big Strides In Insecticides



Research offers newer, better pesticides for crops and livestock. Top farmers will use them. .

Condensed from The National Future Farmer

DEVELOPMENT of microbial insecticides represents a major breakthrough for agricultural research.

This revolutionary approach to pest control depends on live bacteria to start disease outbreaks among insects. Both the diseases and the bacteria are harmless to plants or man.

Several companies are planning to market a microbial product. Only one, Thuricide, is now available. It is a wettable powder preparation, and will kill leaf-eating pests on alfalfa, cotton, lettuce, cabbage, cauliflower, spinach, tomato, and tobacco.

Microbial pesticides do not harm beneficial insects and leave no poisonous residues. They are fairly inexpensive and can be mixed with chemicals for extra strength if needed. Experimental insects at the University of California have failed to build up an immunity to these new killers.

However, there are a few drawbacks. Microbial applications have to be timed carefully to be available at the insect's proper development stage. Since each insect type has its own weaknesses, no all-purpose compound is yet available. It may never be. Combinations, as they become available, will be required for controlling several varieties at once. And each may call for a different application time.

Remarkable progress is also being charted in the control of livestock insects. Screwworm control is being revolutionized by the "sterile-male" approach. Research shows that females mated with sterile males produce infertile eggs. Males mate many times, females only once. The idea is to sterilize radioactively a large number of male screw-worms and distribute them in infested areas. Researchers feel this would gradually reduce the screw-worm population in most cases. Eventually, the pest might be completely eradicated. For example, one test began in July, 1958, with about

Reprinted by permission from The National Future Farmer, Box 29, Alexandria, Virginia

40,000 screw-worm cases being reported every month in Florida. Not a single screw-worm has been found in the state since June 17, 1959.

Several other laboratory and field tests support this theory, but all cost and management problems haven't been solved. For instance, it isn't practical in parts of the Southwest which are also plagued with screw-worms from Mexico.

Researchers have dreamed of an effective cattle grub systemic for over 50 years. Now there are two: Trolene and Co-Ral.

Trolene, an oral preparation discovered in 1954, was the first breakthrough. It is now available commercially as either a bolus or a drench. One ounce per 600 pounds of animal body weight gives 85 to 100 percent control.

Co-Ral is an over-all body spray absorbed by the animal's skin and transferred to all parts of the body. A 0.5 percent concentration is applied with power equipment several weeks before grubs normally come to the skin surface. About one gallon per animal gives 75 to 100 percent control.

So far, these are the only systemics recommended for this purpose by the USDA. Others will doubtless follow. Federal regulations prohibit using either insecticide on dairy animals. Nor are they recommended for any sick or very young animals.

In this age of new compounds and rapid research, one thing is unchanged. All insecticides still have "use only as directed" advice with complete instructions for application. Specialists urge strict observance! Modern pesticides are better than ever; but best results come only with proper use.

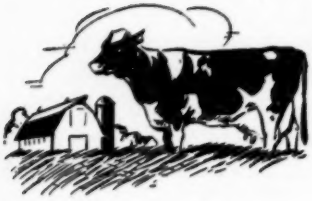
Newer and better preparations are probably just around the corner in all fields of pest control. Tomorrow's farmer may regard the insect as only a minor headache. But even today's accomplishments are almost beyond belief when compared with those of a few years ago,

Too Much Fat on Beef Cows Not Recommended

Farmers with commercial beef herds can't afford to maintain a beef cow in high flesh. Jack Lewis, acting superintendent of the Dixon Springs Experiment Station in southern Illinois, points out that fattening takes two and one-fourth times as much energy as growth does.

Purebred breeders, however, may want the extra flesh on the cows to help sell breeding stock. *—University of Illinois*

Dairy Herd Improvement Through Foundation Cows



This author tells what he'd look for in selecting a foundation matron . . .

Condensed from Western Dairy Journal

Scott Hodgson, Western Washington Experiment Station

A FEW years ago, Carnation Ormsby Butter King completed a record of 1,402 lb. of butterfat on four time milking. Some thought we had reached the top in butterfat production.

A short time ago, a Holstein cow in Ohio, Princess Breezewood R.A. Patsy completed a record of 1,866 lb. of butterfat on twice daily milking.

Good feeding and management have greatly contributed to these production records, but heredity has also played an important part.

Best Bulls. Today's dairy farmers can have some of the nation's finest bulls at their disposal. Artificial breeding organizations have made this possible. They are collecting, preserving and concentrating germ plasm from bulls of proven ability.

Assuming dairymen are using artificial insemination as a source of herd sires, the foundation matron he chooses is of top importance. Certain criteria should be met in selecting this foundation matron if a dairyman is to be successful in getting the best replacements.

Persistent Production. I believe that high persistent production would be my first criterion in selecting a herd matron. By persistent production, I mean year after year as well as high daily production. Production should not be the only basis on which selections are made.

I believe the next thing I would look for in a foundation cow would be reproductive efficiency. This is most important from a dollars and cents standpoint. She should have a calf

Reprinted by permission from
Western Dairy Journal, 4511 Produce Plaza, Los Angeles 58, California

every year and experience little or no trouble in calving. Though breeding efficiency can be hindered by certain environmental factors, there is evidence that fertility is controlled by genetics. Factors which hamper reproduction such as retained placenta and nymphomania may also be inherited.

Disease Resistance. The third thing I would use as a selection tool would be resistance to disease and disorders. We all know of cows that seem to stand up under stress better than their herdmates. Such diseases and disorders as mastitis, bloat, and foot rot do not seem to affect these cows as severely, if at all. Possibly there is little evidence that this ability is inherited but at least your cows will last a lot longer if they are able to withstand stress. The very fact that a cow is producing at a high level subjects her to stress.

Longevity is of importance also. Not longevity for just the joy of living a long time, but productive longevity.

Now we come to the type of the animal we are considering. We all like to see a beautiful show cow. I believe commercial as well as purebred breeders should strive for acceptable type. I wouldn't say we should sacrifice production for type but we should all be looking for something more than just a cow. Certain parts of body conformation do tend to make for better production and we should try to select for them. If I were to pick out my ideal brood cow I would want her to look something like this:

Character of Head. Her head would possess a broad muzzle and her jaw would show strength. Though I'd like her to show lots of character, I don't think much milk comes from a head. I'd like her to have a bright, prominent eye spelling alertness and health.

She would have a long lean neck which would blend smoothly into her shoulders. Her shoulders should be firmly attached to her body. She should be sharp at the withers and full in the crops and

It is theoretically possible for 150 billion mosquitoes to spring from the same parent, all in one season.

blend well at the elbow. I would want this cow to be wide in the chest floor and deep through her heart. These two things are indicative of strength and capacity. Next she should have a good arch of rib and should be deep and open in ribbing so she will be a long, open cow.

I would want her to stand well on her legs. I wouldn't want her to hock in as she walks. I'd prefer her to have a medium set to her

rear legs but not so much set as to be sickle hocked. I would criticize her a little if the set in her legs was too straight as this could detract from normal function. She should have feet that are deep in the heel and not spreading in the toes. She should be level and wide through the rump. Her thurls should be level or nearly so with her hooks and pins.

Persimmons get their puckery taste from their high content of tannic acid.

Fast Milking Udder. I have left this cow's mammary system until last because of its vital importance to a dairy cow's function. The ideal udder should be one that milks out completely and fast with a machine. It should have good texture.

First of all, the udder should show some halving and even a little quartering wouldn't bother me a bit. Because the main supporting strength in an udder is the median suspensory ligament, I want to be sure it is carrying its load adequately. We have all seen young cows leave herds because their udder went too flat on the floor and the "pan" went out. I like an udder to show balance. Of course, the fore udder should be firmly attached to the body wall and carry well forward.

The rear attachments should be high and wide and her rear udder should be full. I would like the teats to be placed on the udder as squarely as possible and they ought to hang plumb or point in a little when the udder is milked out. To me teat placement isn't as important as lack of strength or quality in an udder.

The parts of my cow should blend together so she has acceptable general appearance. I would want her to show strength and not to be too refined. I would like her to be a sharp cow exhibiting a willingness to milk. In temperament she should get along well with her herdmates and her master.

Now that I've described her in some detail I wonder if I'll ever find her, but I'm sure going to keep looking.

Only 7,000 graduates in agricultural sciences are turned out each year by the Land-Grant colleges and universities to fill an estimated 15,000 jobs open to these graduates each year, according to True D. Morse, Under Secretary of Agriculture. "Some 40 per cent of all jobs in the United States are in agriculture — jobs important to everyone — jobs with futures — jobs with financial and personal rewards," he said.

Compaction: A No. 1 Soil Problem

Here's a major challenge to fast pacing farming as we crop land harder and use bigger equipment . . .

Condensed from Capper's Farmer

Norman Reeder

THE better the farmer and the higher his yields, the sooner he steers the talk around to the problems of soil compaction.

Observant farmers are worried about it. Crops and soils men and ag engineers at the colleges are much concerned. So are the builders of farm equipment.

The problem is getting a lot of study. Today at most of the ag colleges around the Corn Belt you find at least one specialist giving full time to compaction research. The USDA Tillage Machinery Laboratory at Auburn, Alabama, is putting major emphasis on it.

What makes the problem so acute is that just about every major development of the 50's tended to aggravate it. Farmers had to stretch manpower in order to keep earnings in line with the rest of society. So they turned to bigger and bigger machine equipment.

Today, tractors and harvesting machines are heavier. We're towing bigger loads of harvested crops in the fields. We're using heavy trucks to spread bulk fertilizer and to haul off the crop. We've added some extra trips over the field to put down nitrogen, to spray for weeds, to fight corn borers, and to shred stalks.

We have plowed up pastures and meadows for continuous row crops, so we aren't getting soils laced with grass roots and tunneled down below plow depth with taproots of alfalfa every 3 or 4 years. At the same time we're turning big droves of hogs and cattle on stalk fields to glean.

By growing cultivated crops every year, we're burning up organic matter at a fast clip. It takes really heavy crop residues plowed down, or cover crops, to take the place of rotation meadow crops and the heavy manuring of former years.

We're working under more pressure. On an all-corn, or corn

Reprinted by permission from Capper's Farmer, Topeka, Kansas

and soybean farm, we have to roll at the first opportunity to get on ground in the spring. We're working more ground while it's still too wet.

Everybody knows what compacted soil is. We've always had it in roadways and on headlands; in corners and along paths trampled by livestock. Compacted soil is dense and heavy. It plows hard and works up lumpy.

But now we know there is more to the problem than hard plowing and lumps. There are all degrees of compaction. At times it's hard to recognize.

When a whole field gets compacted, it is slow to dry out in the spring. Rains don't soak in; water stands on level land or runs off the slopes, eroding the loose soil on top.

In the U. S. a bushel of apples is grown yearly for every man, woman and child.

Researchers have dug into compacted soils and found corn roots all growing down a few cracks. Pore spaces in this soil were just too small for the tips of young corn roots to get into.

They've found soil so compacted that corn roots couldn't get down to the fertilizer that was plowed down for the crop.

It is known that roots need air to support growth, to take up fertilizer nutrients. To produce good yields, soils need to contain a lot of air space and space for water to move among the soil particles.

In one Ohio test, severe compaction cut corn yield by 5 to 11 bushels to the acre even when due allowance was made for difference in stand. With a poorer stand on compacted soil, the difference was 26 bushels to the acre.

In Iowa, severe compaction cut corn yield from 113 to 67 bushels to the acre. With just moderate compaction, yield fell from 113 bushels to 84. All plots were heavily fertilized, but corn on compacted soil wasn't able to use it efficiently.

Does all this spell progressively lower yields and even the ruin of our best cropland, unless we turn back the clock? Should we beat a retreat to rotations and "general farming"?

Those closest to the problem don't think so. They believe we can handle the problem with better soil management, new practices, more care. There is help coming, too, from machinery designers. Some fruits of their thinking are already at hand.

Here are some things you can do to combat compaction, as recommended by one or more top researchers in soil management:

● Practice minimum tillage. Work the soil no more than necessary to establish a seedbed for good germination.

● Stay off when ground is wet. If a ball of earth shows the prints of your hands, or leaves hands wet, it's not ready to work.

Don't be satisfied to try just the surface soil. Take a spade and sample soil down at plow depth. It's at this depth where the weight of a disk packs soil. In plowing, it's where the furrow wheel of a tractor bears down.

● Drain out the wet spots with tile or surface drainage. Then you won't have to choose between waiting or suffering the damage you do by "mudding thru."

● Keep up organic matter. Cover crops are one answer. They build up organic matter, take up excess sub-surface moisture, firm up the soil, and check erosion. It's important to grow heavy stands of corn in order to have big tonnages of stalks to plow down.

● Use "big feet" to carry the weight of tractors and implements. Wide-base rims, dual wheels, crawler tracks, and 4-wheel drives spread out the weight, help ease compaction.

At least one tire manufacturer is known to be testing an extremely fat, doughnut-type tire which is designed to run so soft that something like one-fourth of the circumference is spread out on the ground.

However, recent studies indicate that even with very low pressures per square inch at the soil surface, compaction deeper in the soil may be closely related to the weight of the implement.

● Use more pull-power in proportion to weight. Tractors which transfer implement weight to tractor wheels as needed can handle bigger work loads without added dead weight in proportion. This is one means to lessen average compaction over the field.

Four-wheel drives and piggyback tractors are promising still more pull-power per unit of weight. In loose soil, dual wheels improve traction and pull-power and reduce pressure per square inch on soil.

Agricultural pests often are found in dirt caked under fenders and on wheels of cars returning from abroad, according to U. S. plant quarantine officials.

● Keep the tractor out of the furrow. This is the customary way to plow with track tractors, and it is now possible with some of the biggest wheel tractors.

Unplowed ground is drier than the furrow bottom and better

able to carry the weight without damage.

● Use deep tillage when soils are dry to break up compacted layers at plow depth and below.

Fortunately, the most drastic effects of compaction are overcome on a year-to-year basis by freezing and thawing, swelling and shrinking of the soil. To a large degree you get a chance to start over again—to benefit by better soil management — at the start of each cropping season.

Alfalfa Hay Good Protein Source In Bred Sow Ration

Feeding high quality sun cured alfalfa hay to bred sows during the gestation period reduces the amount of protein supplement that is needed to balance the ration, according to L. J. Kortan, of South Dakota State College.

A ration of corn, oats, alfalfa hay and protein supplement along with adequate minerals makes a satisfactory ration for sows during the gestation. High quality alfalfa hay provides minerals, vitamins and it is a good source of protein. If the ration contains 30 to 40 per cent good alfalfa it will provide at least a part of the required protein.

Here Kortan gives specific ingredients for two economical rations:

A suitable ration could be made up of:
30 lbs. ground shelled corn;
30 lbs. ground oats;
32 lbs. fine, ground, high quality alfalfa hay;
4 lbs. tankage;
4 lbs. soybean oil meal;
½ lb. trace element salt; and
½ lb. bone meal.

Another possibility is:
45 lbs. fine ground, high quality alfalfa;
46 lbs. ground corn;
4 lbs. tankage;
4 lbs. soybean oil meal;
½ lb. bonemeal; and
½ lb. trace element salt.

—*National Hog Farmer*

ONE YEAR CONTINUING INDEX

BEEF CATTLE

Figure Profit, Loss on Cattle .....Aug. 1959
71% of Calves in 3 weeks .....Aug. 1959
Pellets for Beef Calves .....Aug. 1959
Self-Feed Bunkers .....Oct. 1959
50 Years Feeding Progress .....Oct. 1959
Ton Beef Per Acre .....Oct. 1959
Enzymes, Beef Boosters .....Oct. 1959
Calf Per Cow Per Year .....Oct. 1959
Bigger Beef Calves .....Nov. 1959
Beef Bull Care .....Nov. 1959
When Animals Shrink .....Nov. 1959
Crossbreeding For Profit .....Nov. 1959
Santa Gertrudis Cattle .....Dec. 1959
Selecting Beef Cattle .....Dec. 1959
Tranquilizers .....Dec. 1959
What Causes Water Belly? .....Dec. 1959
New in Cattle Feeding .....Dec. 1959
Size and Productivity .....Jan. 1960
Cull Beef Now or Pay Later .....Jan. 1960
Fattens on Home-Made Pellets ....Jan. 1960
Steer for Right Grade .....March 1960
Right Feeding Program .....March 1960
Milk Production of Beef Cow ....March 1960
Your Bull's Kinsey Report .....April 1960
Cattlemen, Registered Beef Breeders May 1960
Growing, Finishing Beef .....May 1960
Beef Boosters Are Important .....May 1960

CONSERVATION AND TREE FARMING

Conservation Farming Pays .....Nov. 1959
Land Farming .....Nov. 1959
53 Acre, One Man Forest .....May 1960
Steps To Profit With Timber .....May 1960

CROPS

Gibberellic Acid Promise .....Aug. 1959
High Moisture Corn .....Oct. 1959
Easiest Income From Crops .....Oct. 1959
What Happened to 1958 Corn .....Dec. 1959
Phosphorus — Key to Good Seed ..Jan. 1960
What Causes Corn Stalk Breakage ..Jan. 1960
Six Ways Boost Soybean Yields ...Feb. 1960
New Varieties For You .....Feb. 1960
Sweet Clover Rebirth .....March 1960
Get Hep to Seed Terms .....March 1960
Kansan Tries Wheel-Track .....April 1960
Corn For Combine .....April 1960
Low Population Limits Yields .....April 1960
Don't Leave Wages in Corn Field ..April 1960
Plant Corn Solid for Green Feed ..April 1960
Hull-Less Oats, Pros and Cons ....April 1960
Will You Plant Oriented Corn? ....April 1960
How Much Water for Corn .....April 1960
Check Corn Yields in Field .....April 1960
Don't Forget That 4th Ear .....April 1960
Plow Planting Corn .....April 1960
Don't Risk Poor Corn Yield .....April 1960
Are Your Corn Yields High Enough? April 1960
Stubble Trouble .....May 1960
Report on Dwarf Corn .....May 1960
Hidden Hunger in Crops .....May 1960

DAIRY CATTLE

What About Contract Milking? ....Oct. 1959
More Milk, Not More Cows .....Nov. 1959
What Costs To Produce Milk .....Nov. 1959
Cow Pools: Passing Fancy?? .....Nov. 1959
Pharmaceutical Milk .....Dec. 1959
Grain-Mix Know-How .....Dec. 1959
Feed Grain in Dry Period? .....Dec. 1959
Where We Are In Dairying .....Dec. 1959
New Mastitis Vaccine .....Dec. 1959
Feed Heifers for Growth .....Jan. 1960
Goldings Test SNF .....Jan. 1960
Loose Housing for Dairy Cattle ....Feb. 1960
Feed Heifers to Breed Earlier .....Feb. 1960
Reduce Herd Turnover .....Feb. 1960
Problem Antibiotics in Milk .....Feb. 1960
Can You Afford A Bull? .....Feb. 1960
Steps To Cleaner Milking Machines .Feb. 1960
Pasture Rearing Bucket Fed Calves March 1960
Plan Calf Pens .....March 1960
Herringbone Stalls Speed Milking .March 1960
Herds Get Larger, So Do Problems March 1960
Why Cows Leave Home .....April 1960
Do Calves Cost Too Much .....May 1960
Treating Posts To Last .....May 1960

FARM BUILDINGS & SHOP WORK

Good Posts Important .....Dec. 1959
Getting Best From Concrete .....March 1960
Planning a New Silo .....April 1960
Aerate Stored Grain .....April 1960

FARM MANAGEMENT

Vertical Integration, Your Farm ...Aug. 1959
Can You Stay in Farming .....Aug. 1959
Cut Cost of Borrowing .....Aug. 1959
Don't Fear Integration .....Aug. 1959
Need Remodel Livestock .....Oct. 1959
Look At Farm Problem .....Nov. 1959
Should You Specialize? .....Nov. 1959
Grain Marketing Questions .....Nov. 1959
Help Son Start Farming .....Nov. 1959
What's A Dollar Worth? .....Nov. 1959
Where To Start on Farm Problem ..Dec. 1959
Swindle Farmers Fall For .....Dec. 1959
Farm Public Relations .....Dec. 1959
What Happened to 1958 Corn Dec. 1959
Use Government Programs .....Dec. 1959
How Low Are Farm Prices .....Jan. 1960
Start Your Son As Partner .....Jan. 1960
The Big Farm .....Jan. 1960
Chances Make Money in 1960 ....Jan. 1960
Can Population Catch Food Supply Feb. 1960
Who'll Gain From More Livestock? .Feb. 1960
Should You Rent or Own a Farm ..Feb. 1960
Agricultural Public Relations .....Feb. 1960
10 Ways to Lose on Livestock ...March 1960
We Can Reduce The Surplus .....March 1960
Check Corn Yields in Field .....April 1960
Check Corn Yields in Field .....April 1960
Corn Vs. Meadows? .....May 1960
Full Story About Subsidies .....May 1960

FARM EQUIPMENT & MACHINERY

Moisture Tester for Soils, Crops ..Aug. 1959
Electromechanization on Farm .....Nov. 1959
Farm Welding Equipment .....Nov. 1959
Machines Raise Your Wages .....Dec. 1959
Push Button Your Answer? .....Dec. 1959
Importance of Horsepower .....Jan. 1960
What Machinery Really Costs .....Jan. 1960
Life from Your Old Battery .....Feb. 1960
Coming — Hay Wafer Machines ...Feb. 1960
Aerate Stored Grain .....April 1960
Four-Wheel Drive Tractors .....May 1960

FEEDS

Balance Your Rations .....Aug. 1959
Pellets for Beef Calves .....Aug. 1959
Corn Feeding Comparisons .....Oct. 1959
How Much Fiber in Ration? .....Oct. 1959

ONE YEAR CONTINUING INDEX

High Moisture Corn .....Oct. 1959
Enzymes, Newest Beef Boosters ....Oct. 1959
Behind Push For Pullets? .....Oct. 1959
Where Are on Additives .....Oct. 1959
Heat Dried Corn Good Feed .....Nov. 1959
Rumen Revolution .....Feb. 1960
Minerals in Ration .....March 1960
Corn Alone, Expensive Ration ....April 1960
Feed High Moisture Corn .....April 1960

FERTILIZERS

Can Fertilizer Maintain Fertility ..Aug. 1959
Manure Worth $500 .....Feb. 1960
Does Fertilizer Harm Soil? .....Feb. 1960
Fertilize, Analyze, Better Forage .March 1960
Plant Food Corn Absorbs .....April 1960
Fertilize For Efficient Crops .....April 1960
Right Place for Starter Fertilizer ..April 1960
Hidden Hunger in Crops .....May 1960

HAY AND HAY CROPS

Are We Wasting Roughage .....Aug. 1959
Best Use Poor Roughage .....Aug. 1959
Coming — Hay Wafer Machines ...Feb. 1960
Inoculation Costs Little, Pays Lot .March 1960
Plant Corn Solid for Green Feed ..April 1960
New Haying Methods .....May 1960

HOGS

More Lean Pork .....Aug. 1959
Pregnant Sow Care .....Oct. 1959
Feeding Young Pigs .....Oct. 1959
Anemia in Pigs .....Oct. 1959
Tail Biting Cure .....Oct. 1959
How To Castrate Pigs .....Oct. 1959
Your Hogs Over-Corned? .....Oct. 1959
Hogs on Concrete .....Nov. 1959
How Long Hog Slump Last? .....Nov. 1959
Modern Swine Feeding .....Nov. 1959
Hygromix for Sows, Pigs .....Dec. 1959
Gain Faster on Pelleted Feed .....Dec. 1959
Management Recommendations ....Dec. 1959
Those Awful Extra Pounds .....Dec. 1959
Hog Grades .....Dec. 1959
Think Twice About Hogs in 1960 ..Jan. 1960
Managing Brood Sow and Litter ...Jan. 1960
Drylot Hog Feeding Expands .....Jan. 1960
Start Right With Pigs .....Feb. 1960
Artificial Insemination, Swine .....Feb. 1960
How to Take Backfat Measurement March 1960
Baby Pig Diseases .....March 1960
Comparing Swine Breeds .....March 1960
Disease-Free Hogs .....March 1960
Repeat Breeder Sows Expensive ..April 1960
What's Ahead in Hogs .....May 1960

INSECTS AND INSECTICIDES

Systemics for Plants, Animals ....Jan. 1960
The "Face" Fly .....Feb. 1960
Corn Thieves in Soil .....April 1960
Corn Seed Treatments .....April 1960
Corn Insect Control Program .....April 1960
Nematode Trouble Increasing .....May 1960
Rust Alarms Protect Corn .....May 1960

PASTURES

Spring Grass 8 Months .....Oct. 1959
Ton Beef Per Acre .....Oct. 1959
Fertilize, Analyze, Better Forage .March 1960
Green Chopping, Rotational Grazing May 1960
Sudan Grass - Hot Weather Ins. ...May 1960

POULTRY

Produce Quality Eggs .....Aug. 1959
Hens Get Enough Energy? .....Oct. 1959
Common Sense about Feed Ad'tives Jan. 1960
14 Hours A Day Laying .....Feb. 1960
Spraying Keeps Eggs Fresh .....March 1960
Better Poultry Feed Efficiency .....April 1960

SHEEP AND GOATS

Robbers Take Sheep .....Oct. 1959
Ahead for Sheepmen .....Nov. 1959
Flying Blind in Sheep? .....Dec. 1959
How To Measure Wool Shrinkage ..Jan. 1960
100 Lb. Lambs 100 Days .....Jan. 1960
Ewe's First Milk .....Feb. 1960
Creep Feeding Lambs .....March 1960
Rotational Creep Grazing Lambs ..April 1960
Insecticides To Use .....May 1960
Sheep Foot Rot Control .....May 1960

SILAGE

Every Acre in Silo .....Aug. 1959
Bunk out of Bunker Silos .....Aug. 1959
Preserving Corn Silage .....Aug. 1959
Stop Seepage from Silo .....Aug. 1959
Make Good Grass Silage .....Aug. 1959
How Corn Silage Measures Up ....Jan. 1960
Planning a New Silo .....April 1960
Make Good Corn Silage .....April 1960
Bruised vs. Coarse Forage Silage ..May 1960

SOILS

Does Fertilizer Harm Soil? .....Feb. 1960
Soil Testing, Real Private Eye ....April 1960
Deep Rooted Plants Open Soil ....April 1960

VETERINARY

Save Barnyard Babies .....Aug. 1959
First Aid for Cow .....Aug. 1959
Tranquilizers .....Oct. 1959
Rearing Orphan Animals .....Oct. 1959
How To Castrate Pigs .....Oct. 1959
Tail Biting Cure .....Oct. 1959
Anemia In Pigs .....Oct. 1959
Infertility in The Cow .....Dec. 1959
What Causes Water Belly? .....Dec. 1959
New Mastitis Vaccine .....Dec. 1959
Systemics for Plants, Animals .....Jan. 1960
How To Use Vet Thermometer .....Jan. 1960
How To Clip Pig Teeth .....Feb. 1960
The "Face" Fly .....Feb. 1960
Take and Read Backfat .....March 1960
What Makes Animal Eat .....March 1960
Dehorn 'em When Young .....March 1960
Question of Antibiotics .....April 1960
Sheep Foot Rot Control .....May 1960
Will Vaccination Lick Mastitis? ....May 1960

WEEDS

New Granular Weed Killers .....March 1960
White Death for Canadian Thistle .May 1960
War On Weeds .....May 1960

MISCELLANEOUS

Farm Ponds for Fun .....Aug. 1959
Don't Blame Research .....Jan. 1960
How To Train Your Dog .....Feb. 1960
Farm Tour of Russia .....March 1960
15-Acre Farm in France .....April 1960
Remember Those Horse Stories .....May 1960

FARMER'S DIGEST CUTTER-CLEANER-SCRAPER TOOL

Cleans spreader beaters. Scrapes plow and cultivator shovels. Cuts weeds and briars. Open bales. Cutlery steel head has knife-sharp cutting hook, broad scraping edge. 20" long. Hanger, hardwood handle. Order one from Farmer's Digest, Fort Atkinson, for each tractor. $1.69 each. Two for $3.00.

FARMER'S DIGEST PIG & CALF CASTRATING KIT

With New Castra-Knife, Illustrated Instructions, Lanyard, Extra Blades.

Do your own castrating and do it right. Half a litter or one calf pays for this kit. The new Castra-Knife is a sharp, handy, safe razor-blade cutter. Unlike old type castrators, it is always super sharp for a fast, sanitary, humane job. It is safer for you and the animal because blade sets to limit depth of cut, also retracts and is shielded when not in use.

Authorities say illustrated instructions are best ever prepared covering old scrotal sac operation and new college-approved, simplified ventral incision method. Plastic lanyard cord with swivel suspends knife from clothing to free hands between operations. Saves time and avoids contamination. Kit also includes five extra blades and a plastic case. Order from this ad. Send only $1.29 to Farmer's Digest. Postpaid. Money back guarantee.

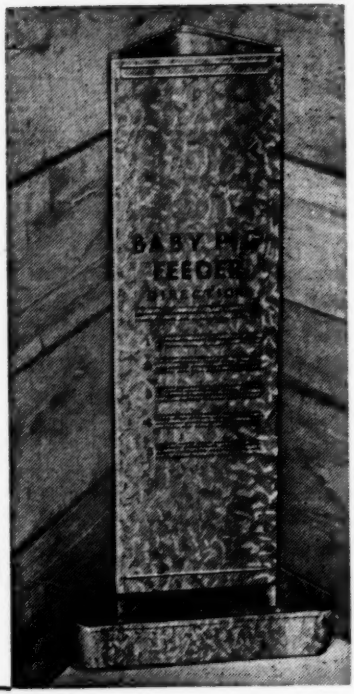
ORDER FROM — FARMER'S DIGEST, Fort Atkinson, Wis.

NEW FARMER'S DIGEST BABY PIG LITTER FEEDER

Start pigs on new creep feeds as early as possible to make money with hogs. This new feeder fits in corner of the pig creep near the heat lamp to start pigs eating as young as five days. Helps you get fast, low cost gains. Feeder front panel adjusts to allow a little or a lot of feed in pan. Saves feed, avoids waste. When litters run together four single feeders make one large feeder. Complete instructions.

4 FEEDERS only

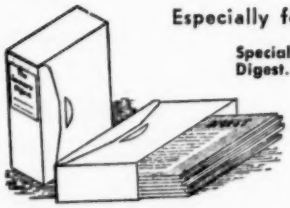
$9.85 Postpaid



FARMER'S DIGEST FARM AND HOME FILES

8 Files, Only $2.95 Postpaid

Now, keep your farm business records filed neat and handy, right at your finger tips. Avoid losing expense records that save tax money. Keep machinery instruction books, crop and livestock records, etc. Made of white-lined cardboard covered with leather-like, forest green paper. Shipped folded flat. Look fine on your office or home bookshelves. Available with printed labels at right. Size 2" thick by 10" high by 7" deep. Specify files desired by number. Send check to address below.



Especially for Farmer's Digest —

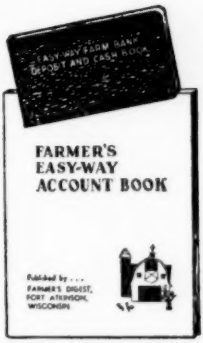
Special file holds one year of Farmer's Digest. Makes a 1000-page, completely indexed library of a one year subscription. Has advantages over binding that costs $4.00 per year. Order with other files listed at right or send 50c for one file, $1 for three.

FILES AVAILABLE
(Order by number)

1. Contents: (You fill in)
2. Agricultural Bulletins
3. Machinery Manuals
4. Swine Records
5. Crop and Field Records
6. Paid Bills and Receipts
7. Unpaid Bills, Receipts
8. Livestock Records
9. Cow Production Records
10. Farmer's Digest
11. Reader's Digest
12. National Geographic
13. Breeding Records
14. Soil Records
15. Poultry Records
16. Social Security Records
17. 4-H Records
18. F. F. A. Records
19. Veterinary Information
20. Government Programs
21. Cancelled Checks
22. Kitchen File
23. Comic Books

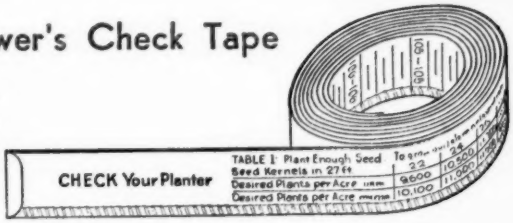
ORDER FROM — FARMER'S DIGEST, Fort Atkinson, Wis.

Farmer's Digest Farm Account System Lets Your Bank Keep Your Books

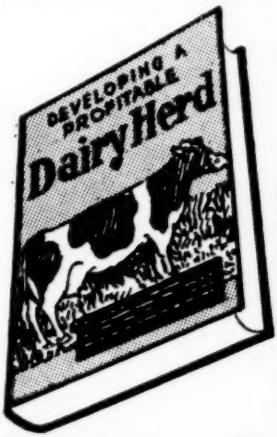


Saves time and taxes. Here's how it works: You deposit all farm income, using the handsome, cloth-bound Easy Way Deposit Book instead of your old bank book. Opposite the teller's entries, you jot down where money came from in ample space provided. To record expenses, pay everything possible by check and note cash spent in handy forms provided. Thus, at end of year, you have accurate substantiated records to summarize in the 48-page Easy-Way Account Book. Regular $1.95. Special Price $1.00.

New Corn Grower's Check Tape



This new idea helps you use latest approved practices to grow more corn. Does four jobs in a jiffy: (1) checks planter drop to make sure you plant enough seed, (2) counts stand per acre when corn comes up, (3) estimates yields before picking, (4) tells bushels your picker left in field. To read tape, just lay along row and count seed, plants or ears. For seed count, operate planter on hard lane. 108". Only $1.29 postpaid.



Book: "Developing A Profitable Dairy Herd"

Book tells whole story of how experts at Carnation Milk Farms built a record-breaking herd . . . revealing secrets every dairyman can use. Covers everything — buildings, breeding, diseases, feeds, feeding, management, veterinary treatment. Brings practical help to overcome dairy problems. Well illustrated. Coth. 224 pages. Regular price $3.50. Special price $1.75 postpaid.

Order From — Farmer's Digest, Fort Atkinson, Wis.

ON OUR FARM — where we publish Farmer's Digest — we find many new ways of doing our farm work better and easier. Our staff developed some of these ideas into useful products that other farmers said they liked. Thus encouraged, we offered them to farm manufacturers for use as premiums and special offers in sales promotion. To our surprise, they were so well received that you may already have one or more. We offer these same products on these pages. Just send your order to Farmer's Digest. All prices are quoted postpaid to you. We invite inquiries from dealers, distributors, premium users.

New Easy Way to — "WEIGH" Beef Cattle

A new, low cost tape now makes it easy for you to accurately estimate the weight of your feeder and beef breeding cattle. For many purposes, it substitutes for a scale costing several hundred dollars. Tested on an experiment station beef herd, scale and tape weights differed less than 2% on total weight of 38 head. Use it to keep track of daily gain and thus check the effectiveness of your feeding program. Use it also to "weigh" fed cattle and market for the most profit. For cattle from 82 to 1888 pounds. One side estimates weight of fed cattle in grades Medium, Good, Choice and Fancy. Other side for feeder, beef breeding and crossbred cattle. To use, just place around heart girth, pull tight, and read correct scale. Side sewed 108" long, 1" wide. Extra strong, non-stretchable, plastic coated fabric in double thickness. Money back guarantee. Send check or M. O. to Farmer's Digest. $1.59 for One Tape, $4.49 for Three, $16.95 for Twelve. Low cost tapes available for premium use.

ORDER FROM — FARMER'S DIGEST, Fort Atkinson, Wis.